NEC Express5800 Series

Express5800/A1080a User's Guide

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Keep this User's Guide at hand for quick reference at anytime necessary.

SAFETY INDICATION

Follow the instructions in this User's Guide for your safety to use the server.

The server contains components with possible danger and hazards that may caused by ignoring warnings. Preventive actions can be taken against such hazards.

Server components potentially dangerous are indicated with a warning label placed on or around them, and described in this User's Guide.

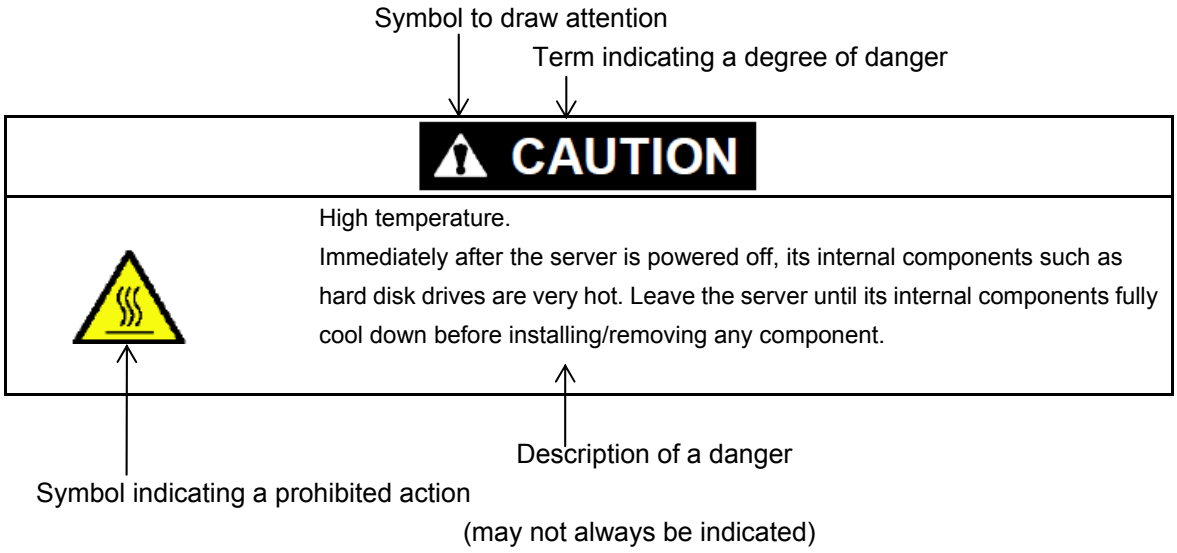
In the User's Guide or warning labels, "WARNING" or "CAUTION" is used to indicate a degree of danger. These terms are defined as follows:

⚠ WARNING	Indicates the presence of a hazard that may result in death or serious personal injury.
⚠ CAUTION	Indicates the presence of a hazard that may cause minor personal injury, including burns, or property damage.

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:

	This symbol indicates the presence of a hazard. An image in the symbol illustrates the hazard type. (Attention)
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)

(Example)



SYMBOLS USED IN THIS USER'S GUIDE AND WARNING LABEL

Attentions

	Indicates that improper use may cause an electric shock.
	Indicates that improper use may cause fumes or fire.
	Indicates that improper use may cause fingers to be caught.
	Indicates that improper use may cause loss of eyesight due to laser beam.
	Indicates that improper use may cause personal injury.
	Indicates that improper use may cause explosion.
	Indicates that improper use may cause personal injury due to high temperature.
	Indicates a possibility of electric hazard due to dual power supply system.
	Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Do not disassemble, repair, or modify the server. Otherwise, an electric shock or fire may be caused.
	Do not use the server in the place where water or liquid may pour. Otherwise, an electric shock or fire may be caused.
	Do not place the server near the fire. Otherwise, a fire may be caused.
	Do not touch the server with wet hand. Otherwise, an electric shock may be caused.
	Do not touch the component specified by this symbol. Otherwise, an electric shock or burn may be caused.
	Indicates a general prohibited action that cannot be specifically identified.

Mandatory Action

	Unplug the power cord of the server. Otherwise, an electric shock or fire may be caused.
	Be sure to provide earthing. Otherwise, an electric shock or fire may be caused.
	Carry the server with two or more persons. Otherwise, a personal injury may be caused.
	Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.

SAFETY AND REGULATORY INFORMATION

FCC COMPLIANCE

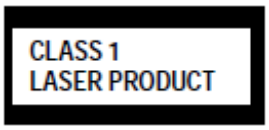
Federal communication commission radio frequency interference statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

CE Statement (*1)

Warning: This is a Class A product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Laser Safety



Warning: This system is classified as a CLASS 1 LASER PRODUCT. This label is located on the internal optical drive installed in your system.

Use in other countries

This equipment is going to be born to be UL Listed label and CE label around late Apr. or mid May 2010. Even when this equipment is exported to countries other than North America or Europe and problems, such as a fine and compensation by the matter, occur on the occasion of import customs clearance and use in the country concerned, our company will exempt from all responsibility regardless of direct or indirectness.

Notes on Export

This equipment (including software) may be classified as the cargo (or service) to which the Foreign Exchange and Foreign Trade Act is applied. If this is the case, an export permit from the Japanese government is required. For materials necessary for applying an export permit, contact your sales agent or nearby NEC sales office.

SAFETY NOTES

This section provides notes on using your server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, see "SAFETY INDICATIONS" provided earlier.

General

WARNING



Do not use the server for services where critical high availability may directly affect human lives.
Your server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. NEC assumes no liability for any accident resulting in personal injury, death, or property damage if the server has been used in the above conditions.



Do not use the server if any smoke, odor, or noise is present.
If smoke, odor, or noise is present, immediately turn off the POWER/SLEEP switch and disconnect the power plug from the outlet, then contact your service representative. Using the server in such conditions may cause a fire.



Keep needles or metal objects away from the server.
Do not insert needles or metal objects into ventilation holes in the server or openings in the optical disk drive. Doing so may cause an electric shock.



Do not use the server in any unapproved place.
Install the server on a standard EIA 19-inch rack cabinet. Do not install the rack containing the server in a place inappropriate to the rack installation environment. Failure to follow these instructions may cause some bad influences to be imposed on your server and other systems installed on the rack and also a fire or personal injury due to falling of the rack may occur. For the detailed explanation on the place where your server should be installed and the earthquake-resistant construction for the rack, refer to the manual attached to the rack or contact your service representative.



Always install the server on a rack conforming to the relevant standard.
Install the server on a rack confirming to the EIA standard for the server to be used. Do not use the server with installed on any other rack than standard EIA 19-inch rack or without the installation on a proper rack. Failure to follow these instructions may cause your server to operate incorrectly and/or personal injury or damages of surrounding devices to occur. Contact your service representative for the racks available for your server.

⚠ CAUTION



Keep water or foreign matter away from the server.
Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the server. Failure to follow this warning may cause an electric shock, a fire, or a failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the server. Contact your service representative.

Notes on Installing and Accessing the Rack Cabinet

⚠ CAUTION



Make sure the wiring of the server does not exceed the rating of the power supply.
To prevent burns, fires, and device damages, the power supplied to the server must not exceed the rating load of the power branch circuit. Contact your electric constructor or the local power company for the requirements on the wiring and installation of electric facilities.



Do not carry or install the rack cabinet only by a single person.
More than one person is required to carry or install the rack. Failure to follow this instruction may cause the rack to fall, resulting in personal injuries and/or surrounding devices to be broken. In particular, a high rack (such as 44U rack) is unstable if it is not secured using stabilizers.



Make sure that the load is not concentrated in a specific point.
Install stabilizers on the rack so that the total load of the rack and devices mounted on the rack is not concentrated on a single point, or join several racks together to distribute the load. Failure to follow this instruction may cause the rack to fall, resulting in personal injuries.



Do not install components on the rack cabinet only by a single person.
More than one person is required to install parts such as the rack doors and trays. Failure to follow this instruction may cause some parts to fall, resulting in personal injuries and/or devices to be broken.



Do not pull out a device from the rack if the rack is unstable.
Always make sure of the stability of the rack before pulling out a device.



Do not leave more than one device pulled out from the rack at the same time.
Pulling out several devices from the rack may cause the rack to fall.

Power Supply and Power Cord Use

⚠ WARNING



Do not hold the power plug with a wet hand.
Do not disconnect/connect the plug while your hands are wet. Failure to follow this warning may cause an electric shock.



Disconnect all power plugs of both power systems while AC power off.
To avoid electric hazard, don't remain the power plug connected while the AC power off.

⚠ CAUTION



Plug in to a proper power source.
Use a grounded wall outlet of the specified voltage. Using an improper power source may cause a fire or a power leak.
Do not install the server in a place where you need an extension cord. Using a cord that does not meet the power specifications of your server may heat up the cord and cause a fire.



Do not give the electric current exceeding the rated flow to the PDU.
The electric current exceeding the rated flow overheats the outlet, which may cause a fire.



Use only the authorized power cord.
Using an unauthorized power cord may cause a fire if the electric current exceeds the rated flow. Also observe the following to prevent an electric shock or fire caused by a damaged cord.

- Do not stretch the cord harness.
- Do not pinch the power cord.
- Do not bend the power cord.
- Keep chemicals away from the power cord.
- Do not twist the power cord.
- Do not place any object on the power cord.
- Do not step on the power cords.
- Do not bundle the power cords.
- Do not alter, modify, or repair the power cord.
- Do not secure the power cord with staples or equivalents.
- Do not use a damaged power cord. (Replace a damaged power cord with a new one of the same specifications. Ask your service representative for replacement.)

⚠ CAUTION



Do not use the attached power cord for any other devices or usage.
The power cord that comes with your server is specifically to be connected with this server, and its safety has been tested. Do not use the attached power cord for any other purpose. Doing so may cause a fire or an electric shock.



Insert the power plug into the outlet as far as it goes.
Heat generation resulting from a halfway inserted power plug (imperfect contact) may cause a fire. Heat will also be generated if condensation is formed on dusty blades of the halfway inserted plug, increasing the possibility of fire.



Do not pull the cable when disconnecting it.
When disconnecting the cable from the device, hold the cable connector and pull it straight out. Pulling the cable out by the cable portion or giving mechanical stress to the connector could damage the cables and connectors to result in an electrical shock hazard or a fire.

Installation, Relocation, Storage, and Connection

⚠ CAUTION



Do not install your server on a rack without its cover.
Failure to follow this instruction may reduce the cooling effect in the server, resulting in some malfunction and/or dust entering the server, and resulting in a fire or electric shock.



Do not install the server in any place other than specified.
Do not install the server in the following places or any place other than specified in this manual. Failure to follow this instruction may cause a fire.

- a dusty place
- a humid place such as near a boiler
- a place exposed to direct sunlight
- an unstable place



Do not pinch your finger with rails or other components.
Note sufficiently that your fingers may not be caught between a rail and another mechanical part or cut by a rail at installation or removal of the server from the rack.



Do not connect any interface cable with the power cord of the server plugged to a power source.
Make sure to power off the server and unplug the power cord from a power outlet before connecting/disconnecting any interface cable to/from the server. If the server is off-powered but its power cord is plugged to a power source, touching a cable or connector may cause an electric shock or a fire resulted from a short circuit.



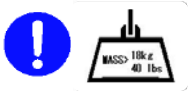
Do not use any unauthorized interface cable.
Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an authorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire. Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the server with loose cable connections.
- Do not use any damaged cable.

⚠ CAUTION



Do not use the equipment in the place where corrosive gases exist.
Make sure not to locate or use the server in the place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist. Also, do not set it in the environment where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals. There is a risk of a fire due to corrosion and shorts of an internal printed board.



Use the lift equipment to lift the server.
Your server weighs 79.6 kg (depending on its hardware configuration). Carrying the server by three or less persons may strain their back. If there is no lift equipment, hold the server firmly by its handles placed at the side or its bottom with at least four persons to carry it.

Cleaning and Working with Internal Devices

⚠ WARNING



Do not disassemble, repair, or alter the server.
Never attempt to disassemble, repair, or alter the server on any occasion other than described in this manual. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the server.



Do not look into the optical disk drive.
A laser beam used in the optical disk drive is harmful to the eyes. Do not look into or insert a mirror into the drive while the drive is powered. If a laser beam is caught in your eyes, you may lose your eyesight (the laser beam is invisible).



Do not remove the lithium batteries.
Your server contains lithium batteries. Do not remove or replace the batteries. If the battery is incorrectly replaced, it may cause an explosion. Placing the battery close to a fire or in the water may also cause an explosion.
When the server does not operate appropriately due to the dead lithium batteries, contact your service representative to replace the battery. Do not disassemble the server to replace or recharge the battery by yourself.



Disconnect all the power plugs before accessing inside the server, or connecting the peripherals.
Make sure to power off the server and disconnect the all power plugs from a power outlet before cleaning or installing/removing internal optional devices (except for hot-swappable devices). Touching any internal device of the server with its power cords connected to a power source may cause an electric shock even of the server is off-powered.
Disconnect all the power plugs from the outlet occasionally and clean the plug with a dry cloth. Heat will be generated if condensation is formed on a dusty plug, which may cause a fire.

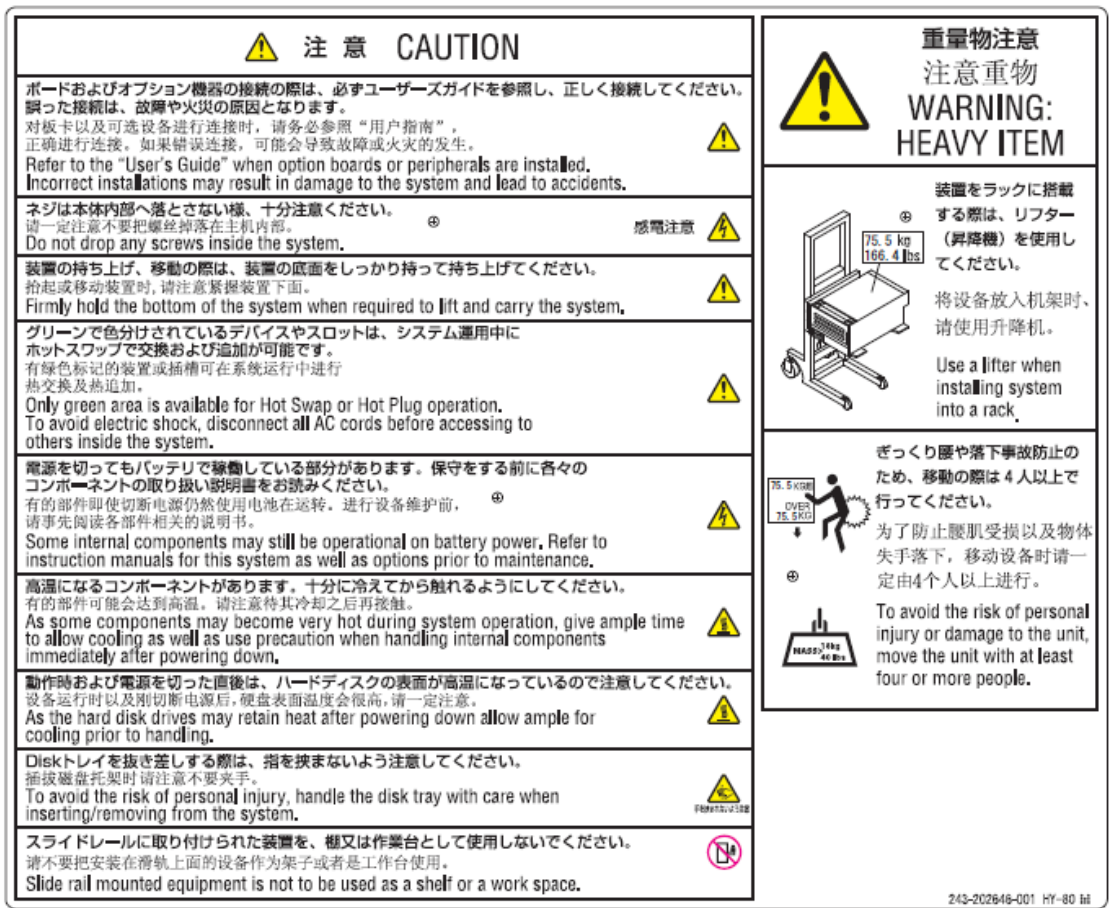
CAUTION	
	Hot surface Immediately after the server is powered off, its internal components such as hard disk drives are very hot. Leave the server until its internal components fully cool down before installing/removing any component.
	Make sure to complete device installation. Install the power cable, interface cable, board, and/or internal options firmly. An incompletely installed component may cause a contact failure, resulting in smoking or fire.
	Protect the unused connectors with the protective cap. The unused power supply cable connectors are covered with a protective cap to prevent short circuits and electrical hazards. When removing the power supply cable connector from the internal devices, attach the protective cap to the connector. Failure to follow this warning may cause a fire or an electric shock.
	Do not touch any electrical components inside the server during a hot-swap replacement. Power flows inside the server while the hot-swap replaceable components (hard disk drive, cooling fan, and power supply). Do not touch the electrical components inside the server to avoid an electric shock.

During Operation

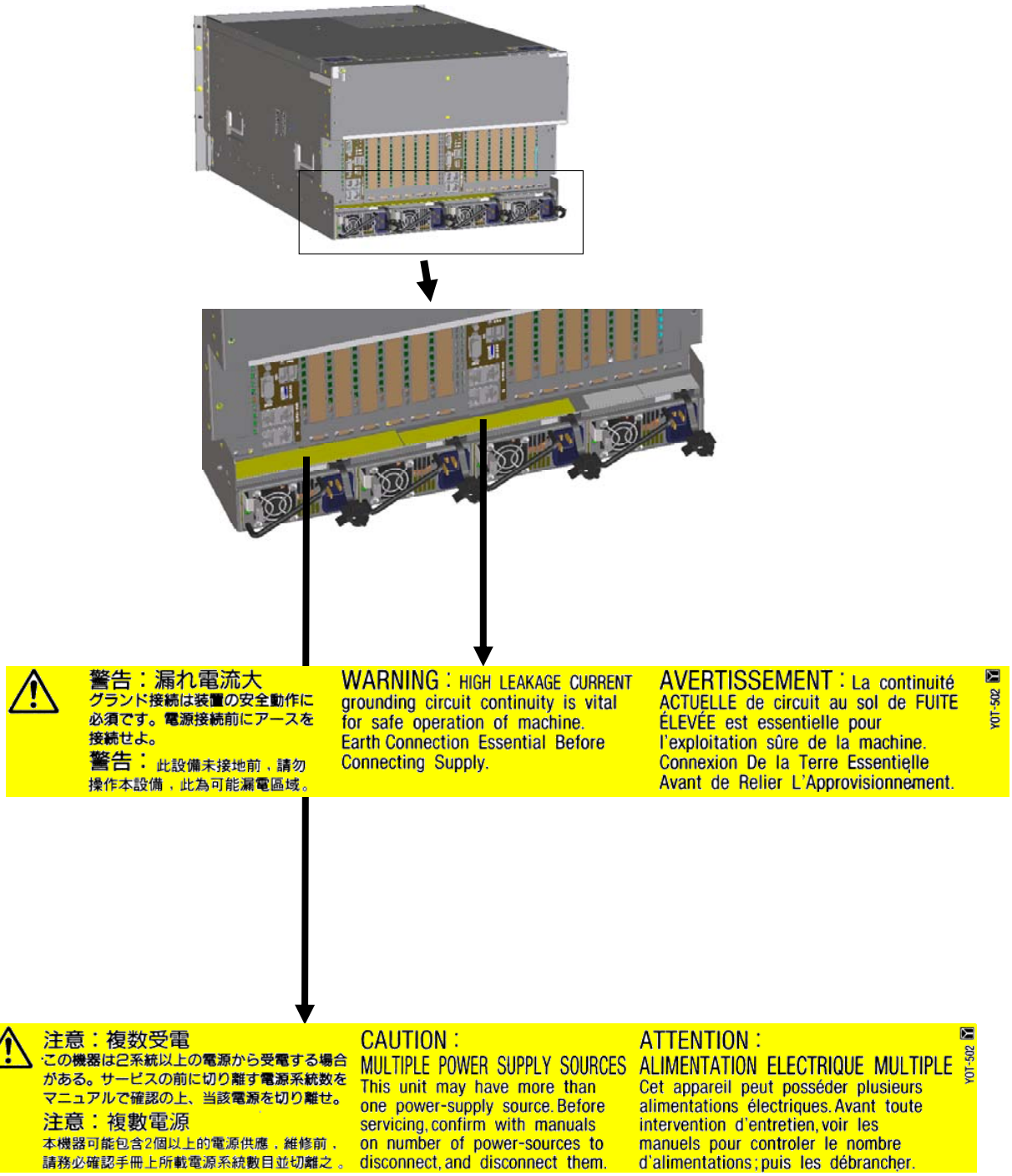
WARNING	
	Avoid contact with the server during thunderstorms. Disconnect all the power plugs from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the all power plugs, do not touch any part of the server including the cables. Failure to follow this warning may cause a fire or an electric shock.
	Do not place any object on top of the server. An object placed on top of the server may fall down, resulting in damage to your property around the server.

WARNING LABELS

The warning label is attached to components with possible danger or their vicinity in your server to inform the user that a hazardous situation may arise when operating the server. (Do not intentionally remove or damage any of the labels.) If you find any labels totally/partially removed or illegible due to damage, contact your service representative.







There exists labels that does not include the description in Chinese. The Chinese description is required for Taiwan.

FOR PROPER OPERATION

Observe the following notes for successful operation of the server. Use of the server ignoring the notes will cause malfunctions or failures of the server.

■ Install the server in a place that meets requirements for successful operation.

■ Safety indications by color of the parts.
Only green area is available for Hot Swap or Hot Plug operation. To avoid electric shock, disconnect all AC cords before accessing to others inside the system.

■ Make sure to power off the server before connecting or disconnecting cables between the server and peripheral devices (except for hot-swappable devices).

■ Verify that the OS and the utility software running on BIOS has stopped and the access lamp on the disk drive is unlit before turning off the server.

■ Verify that the access LED on the CD/DVD drive is unlit before ejecting the CD/DVD.

■ When you plug the power cord to the power outlet, wait at least 1 minute before powering on the server.

■ If you power off the server, wait at least 30 seconds before powering it back on.

■ If you unplug the power cord from the outlet, wait at least 30 seconds before plug it back.

■ Do not turn off the server until characters following the "NEC" logo appear on the screen. The time until the characters appear depends on your system configuration. Approximately, it may take one to five minutes.

■ Turn off the power and unplug the power cord from the outlet before relocating or cleaning the server.

■ Clean the server on a regular basis. (See Chapter 7 for cleaning.) Regular cleaning proactively prevents various failures of the server.

■ Lightning may cause a momentary voltage drop. To prevent this problem, it is recommended to use of an uninterruptible power supply unit.

■ For the disk which does not conform to the CD or DVD standard, the playback of such a disk with the DVD drive is not guaranteed.

■ Check and adjust the system clock before the operation if any of the following conditions is applicable.

- After carriage of the server
- After storage of the server
- After the server is entered into the pause state under the environmental condition enduring the server operation (temperature: 10° C - 35° C, humidity: 10% - 80%).

Check the system clock at the rough rate of once per month. When the system clock is installed in a system requiring high time precision, it is recommended to use a time server (NTP server).

If the system clock is remarkably delayed or advanced as the passage of time in spite of

adjustment, contact your sales agent to ask maintenance.

■ Store the unit under the approved storage conditions (temperature: -10°C - 55°C, humidity: 20% - 80%, without condensation) to allow the built-in devices and the unit to operate correctly in the next operation.

■ If the server is stored under the environmental condition enduring device operation (temperature: 10°C - 35°C, humidity: 10% - 80%), leave the server in the operating environment at least one hour before turning the AC power on.

■ If the media (e.g., tape cartridge) brought from a cold place to a warm place suddenly is set in the server, internal option device, or the backup device, the dew condensation may be generated resulting in malfunction or failure of the unit. Leave the media in the operating environment until it fully adapts to the surroundings to protect the valuable data or property.

Guideline to eliminate dew condensation in winter time (10 degrees or more temperature difference from the room temperature exists):

Disk drive: Two or three hours (approx.)

Media: One day (approx.)

■ NEC recommends you use NEC's genuine products. Some third-party products claim that they support the server. However, repair of the server due to a failure or damage resulted from use of such third-party products will be charged.

■ Turn off the cellular phone or pager. Radio interference may cause malfunctions of the server.

Advice for Health

The longer you keep using the computer equipment, the more you become tired, which may cause disorders of your body. When you use a computer, observe the following to keep yourself from getting tired:

Good Working Posture

Your working posture is good if the following are satisfied when you use a computer:

- You sit on a chair with your back straight.
- Your hands are parallel with the floor when you put them on the keyboard.
- You look at the screen slightly lower than your eye height.

No part of your body must be under excessive strain, your muscles must be relaxed.

Your posture is bad when you sit with your back hunched up or you operate a display unit with your face close to the screen. A bad working posture may cause eye strain or poor eyesight.

Adjustment of the Display Unit Angles

Most display units are designed for adjustment of the horizontal and vertical angles. This adjustment is important to prevent the screen from reflecting bright lights and to make the display contents easy to see. You will not be able to keep a "good working posture" and you will feel more tired than you should if you operate a display unit without adjusting horizontal and vertical angles.

Adjustment of Screen Brightness and Contrast

The display unit has brightness and contrast adjustment functions. The most suitable brightness and contrast adjustment depends on the individual and on the working environment (well-lighted room or insufficient light). Adjust brightness and contrast so that the screen is easy to see. An extremely bright or dark screen will have cause eye troubles.

Adjustment of the Keyboard Angle

The keyboard provided with the server is designed for adjustment to a certain angle. Adjust the keyboard at an angle at which the keyboard is easy to operate. The adjustment assists in reducing strain on your shoulders, arms, and fingers.

Cleaning the Equipment

Clean the equipment regularly. It is difficult to see the display contents on a dusty screen. Keeping your equipment clean is also important for your sight.

Fatigue and Rest

If you feel tired, you should stop working and do light exercises.

PREFAC

Congratulations on the purchase of your NEC Express server.
Your server is a high-performance and high-density server based on the Intel® Xeon® processor.

Your server achieves the high-power and the high-speed computation by the latest technology and the architecture of NEC.
With its high-reliability and expandability, the server may be used as the enterprise server which can realize the basic computing system in the wide range.

Read this User's Guide thoroughly to fully understand the handling of the server and appreciate its functions to the maximum extent.

ABOUT THIS USER'S GUIDE

This User's Guide is a guide for proper setup and use of the server.
This User's Guide also covers useful procedures for dealing with difficulties and problems that may arise during setup or operation of the server. Keep this manual for future use.
The following describes how to proceed with this User's Guide.

The guide is intended for persons who are familiar with operating systems including Windows and fundamental operations of general-purpose I/O devices including the keyboard and mouse.

Text Convention

The following conventions are used throughout this User's Guide. For safety symbols, see "SAFETY INDICATIONS" provided earlier.

IMPORTANT :	Items that are mandatory or require attention when using the server.
NOTE :	Helpful and convenient piece of information

How to Use This Manual

To aid you in finding information quickly, this manual contains the following information:

IMPORTANT : Read "**Safety Indications**" first

Be sure to read "Safety Indications" indicated by the beginning of this manual before reading this editing.
By "Safety Indications ", in order to use this product correctly safely, important notes are indicated.

Chapter 1 General Description and Setting Up Your Server

This chapter provides the information about general description and setting up this server.

Chapter 2 Hardware

This chapter provides the information about hardware of this server.
describes the information necessary to use the server, such as names and functions of its components. tells you how to select a site, install the server in rack, make cable connections, and power on your system. tells you how to configure the system and provides instructions for running the EXPRESSSCOPE® Monitor, the BIOS Utility and the RAID configuration utility, which is used to configure RAID system in your system.
provides you with instructions for upgrading your system

Chapter 3 Software

This chapter provides the information about software of this server.
describes how to install the Operating System. It also gives information how to install and use the utilities.

Chapter 4 Maintenance

provides you with all the information necessary to maintain successful operation of the server including helpful information for solving problems that might occur with your system.

IN THE PACKAGE

The carton contains various accessories, as well as the server itself. See the packing list to make sure that you have everything and that individual components are not damaged. If you find any component missing or damaged, contact your service representative.

- Store the provided accessories in a designated place for your convenience. You will need them to install an optional device or troubleshoot the server, as well as to set it up.
- Improper use of any provided DVD-ROM may alter your system environment. If you find anything unclear, immediately ask your service representative for help.

TRANSFER TO THIRD PARTY

The following must be observed when you transfer (or sell) the server or software provided with the server to a third party:

NEC Express Server

Make sure to provide this manual along with the server to a third party.

IMPORTANT : About data on the hard disk drive

Be sure to take appropriate measures not to leak important data (e.g., customers' information or companies' management information) on the removed hard disk drive to any third parties.

Data seems to be erased when you empty "Recycle Bin" of Windows or execute the "format" command of the operating system. However, the actual data remains written on the hard disk drive. Data not erased completely may be restored by special software and used for unexpected purposes.

It is strongly recommended that the software or service (both available at stores) for data erasure should be used in order to avoid the trouble explained above. For details on data erasure, ask your sales representative.

Provided Software

To transfer or sell any software application that comes with the server to a third party, the following requirements must be satisfied:

- All provided software applications must be transferred and no backup copies must be retained.
- Transfer requirements listed in "Software License Agreement" that comes with each software application must be satisfied.
- Software applications that are not approved for transfer must be uninstalled before transferring the server.

CONSUMABLES

Your server contains some components that are only good for a limited period of time and require replacement, such as batteries, fans, the internal optical disk drive, the floppy disk drive, and the mouse. For stable operation of the server, NEC recommends you replace these components on a regular basis. Consult with your service representative for replacement or the product lives.

DISPOSAL OF THE SERVER

Dispose the server, all the internal devices and DVD/CD-ROMs according to all national laws and regulations. Also dispose of the power cord provided with the server to avoid diversion to some other devices.



Disposing of your used NEC product

In the European Union

EU-wide legislation as implemented in each Member State requires that used electrical and used electronic products carrying the mark (above) must be disposed of separately from normal household waste. When disposing of used NEC products, you should comply with applicable legislation or such terms which may have been agreed between NEC and your company regarding used products. The mark on the electrical and electronic products only applies to the current European Union Member States.

Outside the European Union

If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority and ask for the correct method of disposal.

IMPORTANT :

For disposal (or replacement) of the battery of the server, consult with your service representative.

It is the user's responsibility to completely erase or modify all the data stored in storage device such as hard disk drive so that the data cannot be restored.

NOTE :

If the real-time clock battery on the server has reached the end of its life, the following message appears on the display while running the POST. Contact your service representative to replace the battery.

ERROR: Type:2; Severity:80; Class:0; Subclass:5; Operation: 800B

⚠ WARNING



Do not remove the lithium batteries.

Your server contains the lithium batteries. Do not remove the battery. Danger of explosion if the battery is incorrectly replaced. Placing the lithium battery close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the failure of lithium batteries, contact your service representative to replace the battery. Do not disassemble the server to replace or recharge the battery by yourself.

REGARDING THE TRANSPORTATION OF THIS SYSTEM

This system and/or associated options and accessories may be using lithium metal batteries or lithium ion batteries.

There may be restrictions regarding the air or sea transportation of such lithium batteries.

Please contact your reseller or service company prior to transporting this system and/or its options.

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ABOUT ONLINE DOCUMENTS

Online Documents

Following documents are stored in the NEC EXPRESSBUILDER. Please read right document when you need it.

- Express5800/A1080a User's Guide (This manual)
- Microsoft® Windows Server® 2008 Installation Guide
- Microsoft® Windows Server® 2008 R2 Installation Guide
- NEC ESMPRO Agent Extension Installation Manual
- NEC ExpressUpdate Agent Installation Manual
- NEC ESMPRO Manager Installation Guide(for windows)
- NEC ESMPRO Manager Installation Guide (for Linux)
- NEC ESMPRO Manager Command Line Interface Document
- NEC ESMPRO Manager Setup Guide
- NEC ESMPRO Agent User's Guide
- NEC ESMPRO AlertManager User's Guide
- Universal RAID Utility Ver2.1 or later User's Guide (for Windows)
- Universal RAID Utility Ver2.3 User's Guide (for Linux)

NEC Express5800 Series
Express5800/A1080a-S, A1080a-D, A1080a-E

1 Introduction

This chapter describes the features of the server or attached software and points that the customer needs to understand at introducing the server. The setup procedure is also described in this Guide. Read this Guide carefully for the proper setup.

“Features of the Server” (page 41)

This section describes the features of the server or of the attached software (or sold separately), and the system management function that is realized by the combination of each optional product and software.

“Introducing the Server” (page 57)

This section describes points and advices for reference that the customer needs to understand when configuring the system.

“Before Starting Setup” (page 62)

This section describes the setup procedure. The setup procedure differs depending on the OS to be used or the server status when purchased.

“Setup” (page 64)

This section describes the setup procedure of the management PC, hardware and the OS.

“Setup for Troubleshooting” (page 68)

Set up the server to recover from failure shortly and steadily at the failure occurrence.

“Advanced Setup” (page 84)

Specific setup procedure may be required depending on the system environment or the OS to be installed. Refer to this section as necessary.

Features of the Server

High Performance

- Inter® Xeon® Processor 7500 series
- High-speed memory access (DDR3 1066)
- High-speed 1000BASE-T/100BASE-TX/10BASE-T interface
- High-speed disk access (Supports SAS(Serial Attached SCSI))

High Reliability

- Memory monitoring feature (Error correction/ Error notification)
- Memory/Processor monitoring feature (Degradation)
- Memory mirroring feature
- Memory sparing feature
- Thermal sensor
- Error notification
- Internal Fan revolution monitoring feature
- Internal voltage monitoring feature
- Redundant power supplies (Supports Hot-swap)
- RAID system
- Auto rebuild feature (Supports Hot-swap)
- BIOS pass-word feature
- Redundant Fan units (Supports Hot-swap)

Management Utilities

- Remote monitoring feature (EXPRESSSCOPE® Engine SP 2)
- NEC ESMPRO (Management software)
- Universal RAID Utility
- Hard disk drive monitoring

Power Saving Feature

- High efficiency power supply based on 80 PLUS® GOLD
- Decrease running cost using advance save energy control technology

Expandability

- Up to 8 processors/64 core
- Large memory up to 1TB (A1080a-S/A1080a-D)/ Up to 2TB (A1080a-E)
- Up to 14 I/O slots (A1080a-E)
- Up to 12 hard disk drives (Supports Hot-swap)
- 3 network ports available (One of them is use for server management)
- One-touch installation for additional HDD or power supply unit.
- Supports USB2.0

Convenient Features

- Error device notification using BID (Built-In Diagnostics)
- EXPRESSSCOPE® Monitor (LCD)
- Software power OFF
- Remote Power ON/OFF feature
- Consol less feature (Web consol)

Setup Utilities

- NEC EXPRESSBUILDER
- BIOS Setup utility

Self-diagnosis

- Power On Self-Test (POST)
- System diagnosis utility (TeDoLi)

Maintenance Features

- Memory dump feature
- Hardware dump feature
- Event log correcting feature
- Off-line maintenance utility

Feature of Each Model

There are 3 types of models for the server.

- **A1080a-S Model**
- **A1080a-D Model**
- **A1080a-E Model**

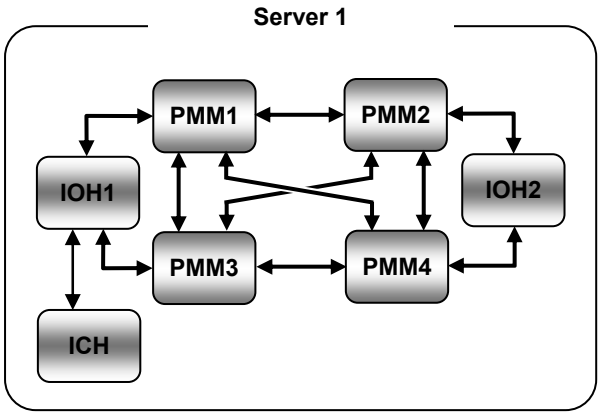
A1080a-S Model

A1080a-S model can mount up to four processors. The memory configuration is from 4GB (2GB x 2) for the minimum to 1TB (16GB x 64) for the maximum.

At least one processor memory module is required for A1080a-S model.

A1080a-S model aims to improve performance by reducing the QPI (Quick Path Interconnect) connection of lower number processor memory modules #1, #2, #3 and #4 in the server of A1080a-E model, and by increasing the QPI connection instead. The following configuration is available for this model.

Only Server 1 is configured on A1080a-S model.



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

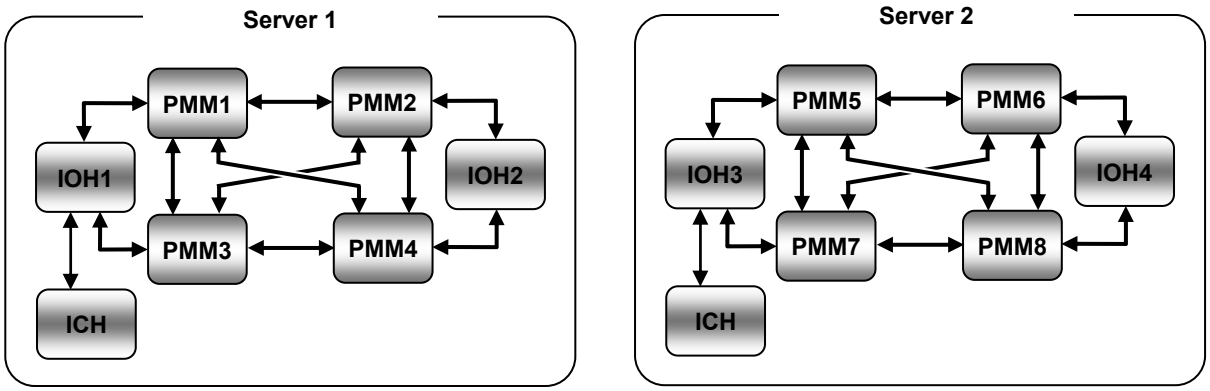
A1080a-D Model

A1080a-D model is configured with two servers that can mount up to four processors per server. The memory configuration is from 4GB (2GB x 2) for the minimum to 1TB (16GB x 64) for the maximum on both Server 1 and Server 2.

At least two processor memory modules are required for A1080a-D model.

A1080a-D model aims to improve performance by reducing the QPI (Quick Path Interconnect) connection of lower number processor memory modules #1, #2, #3 and #4 and higher number processor memory modules #5, #6, #7 and #8 in the server of A1080a-E model described in the next page, and by increasing the QPI connection instead. The following configuration is available for this model.

Each server of A1080a-D model is called Server 1 and Server 2.
This model is configured with two servers having up to four processors.



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

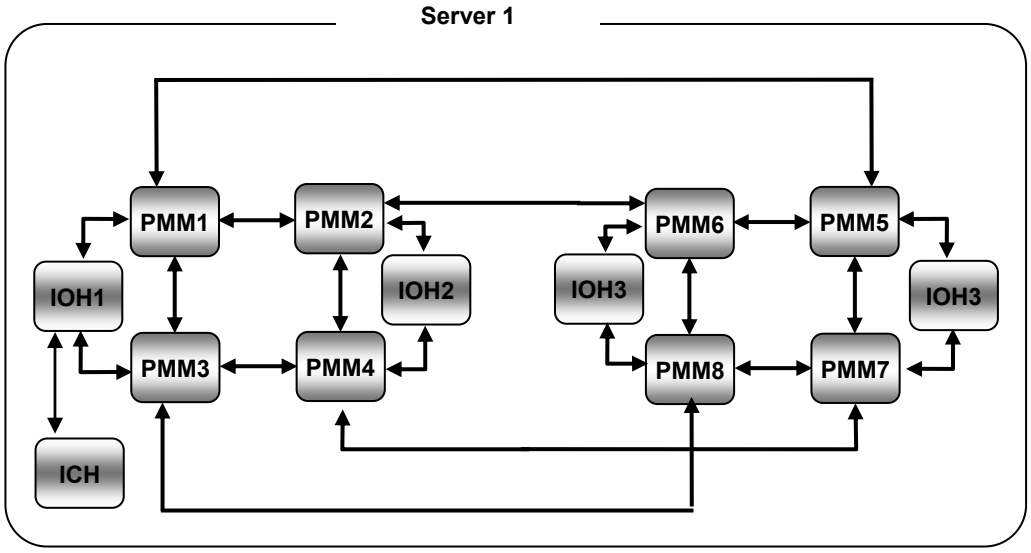
A1080a-E Model

A1080a-E model is configured with eight processors.

The memory configuration is from 8GB (2GB x 4) for the minimum to 2TB (16GB x 128) for the maximum.

A1080a-E model aims to improve expandability of I/O interface by reducing the QPI (Quick Path Interconnect) connection, and by connecting the lower number processor memory modules #1, #2, #3 and #4 and higher number processor memory modules #5, #6, #7 and #8 in the server of A1080a-D model described in the previous page.

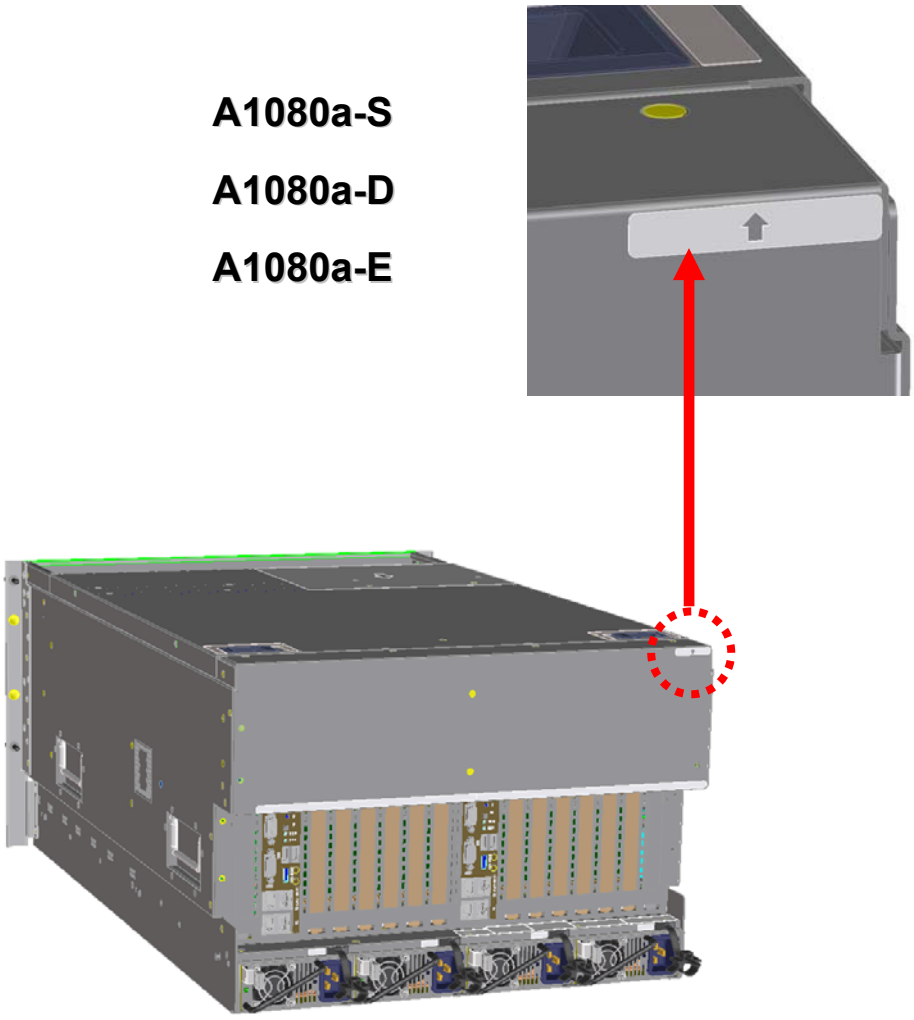
Only Server 1 is configured on A1080a-S model.



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

Checking Model Name

Model name can be checked with the stick-on label on the upper right side seen from the rear of the server.



Rear of Server

Management Function

The server provides various functions to achieve high reliability.
System failure can be prevented or recovered in a short period of time by the linkage between functions provided by the hardware itself such as redundancy of each resource as well as RAID system and monitoring functions provided by software such as NEC ESMPRO included in the server.
Reliability can be further improved by introducing various optional products such as uninterruptible power system used for preventing the server from power failure such as a power outage and backup device to prevent unexpected data loss.
Each function is realized by each hardware and software shown below.

Management Area	Required Hardware	Required Software
Server Management	Function of Server	NEC ESMPRO Manager NEC ESMPRO Agent
Storage Management ● Disk Management ● Backup Management	 RAID Controller DAT/LTO and others	NEC ESMPRO Manager NEC ESMPRO Agent Universal RAID Utility ARCserve, BackupExec,
Power Management	Uninterruptible Power System (UPS)*	ESMPRO AutomaticRunningController ESMPRO AC Enterprise ESMPRO AC Enterprise Multi Server Option
Network Management	Each Network Card	WebSAM NetvisorPro* and others
Remote Management	EXPRESSSCOPE® Engine SP2 that is standard feature of the server	NEC ESMPRO Manager NEC ESMPRO Agent

* Optional product

Server Management

System monitoring chip is installed as standard on the system board of the server. This system monitoring chip monitors the following each resource installed in the server. These hardware functions and software for the server management such as NEC ESMPRO Manager/NEC ESMPRO Agent link each other to monitor the server operation status, etc. In case of failure, these functions report the failure to the administrator immediately.

The table in the next page shows the availability of each function on the server.
Remote operation and maintenance can be performed from the management PC when the operating system is not running. The server can be powered on by the remote power-on function.

NOTE :
NEC ESMPRO Manager and NEC ESMPRO Agent are attached to the server as standard. Refer to descriptions of each software for the installation procedure or usage.

The availability of features

Item		Availability	Description
Hardware		✓	Displays hardware resource information.
	Memory bank	✓	Displays memory bank information.
	Device Info	✓	Displays server-specific hardware information.
	CPU	✓	Displays CPU information.
System		✓	Displays logical information and monitors the rate of CPU load. Displays logical information and monitors memory usage.
I/O device		✓	Displays I/O device information (serial port, parallel port, keyboard, mouse, and video).
System environment		□	Monitors temperature, fan, voltage, power supply, and chassis door.
	Temperature	✓	Monitors temperature in the enclosure
	Fan	✓	Monitors fan unit.
	Voltage	✓	Monitors internal voltage.
	Power supply	✓	Monitors power unit.
	Chassis cover	○	Monitors chassis intrusion (door open or close).
Software		✓	Displays information on service, driver, and OS.
Network		✓	Displays information on LAN and monitors packet.
BIOS		✓	Displays BIOS information.
Local polling		✓	Monitors MIB value that NEC ESMPRO Agent acquires.
Storage		✓	Displays configuration information of storage device.
File system		✓	Displays file system configuration and monitors free space capacity.
RAID system		✓	Monitors RAID controller.
Others *1		✓	Monitors OS stall using watchdog time. * Available only on Windows system.
		✓	Issues an alert after OS STOP error.

✓ : Supported, □ : Partially supported, ○ : Unsupported

*1 : Not displayed on NEC ESMPRO Manager console.

About difference between NEC ESMPRO Agent for Windows and for Linux.

In Linux system, only fault report is supported for monitoring RAID system.
RAID system information is not displayed on NEC EMSPRO Manager console.
Please use RAID system management utility.

Storage Management

Make sure to pay attention to the following points to manage the server that can install and connect a large capacity storage device.

Disk Management

Improving the fault-tolerance of the hard disk drive can directly result in improving the reliability of the whole system.
Data loss can be prevented and the utilization of hard disk drive can be improved by setting redundancy of hard disk drive by grouping with use of optional RAID controller (disk array controller).

The RAID system management utility can monitor RAID system status totally to handle the failure of the hard disk drive in a short period of time with the linkage of NEC ESMPRO Manager and NEC ESMPRO Agent.

NOTE :
Universal RAID Utility,NEC ESMPRO Manager and NEC ESMPRO Agent are attached to the server as standard. Refer to descriptions of each software for the installation procedure or usage.

IMPORTANT :
Preventive maintenance by Patrol Read
Patrol Read is available as the preventive maintenance for subsequent defects of hard disk drive. This allows subsequent defects to be found in early stage.

RAID Controller Function	Function Outline
RAID Level	This function supports RAID 0, 1, 5, 6, 10 and 50.
Hot Swapping	Hard disk drive can be replaced while the system is operating.
Auto Rebuilding	After replacing the failed hard disk drive with the new one, this function restores the data automatically which the failed hard disk saved by acquiring data from other hard disk drives.
Hot Spare	This is a function to prepare an extra hard disk drive preliminary to replace a failed hard disk drive. By preparing the hot spare, the rebuilding function is activated automatically when a failure occurs and RAID system is recovered.

Backup Management

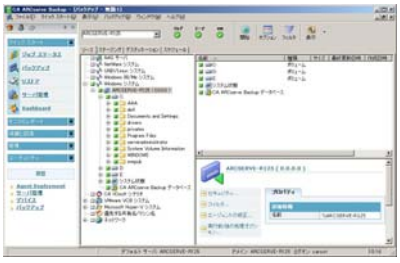
Periodical backup is the most basic preparation for a sudden server failure.
Devices for backup and various software for auto-backup are provided for the server. Use them depending on your environment such as disk capacity, transmitting speed or backup schedule setting.

Device Name	Description
DAT	This has compatibility as standard and is widely used backup media. Data backup is possible. This is for small to mid-scale system.
LTO	This is high performance backup device for large scale system such as mission critical operations.

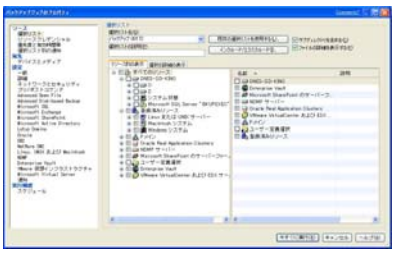
Software Name	Description
ARCserve (CA)	This is backup tool of PC server. This operates by schedule and is available for assembled backup device and DB online backup.
BackupExec (Symantec)	This is backup tool of PC server. The same tape format as NTBackup is used. This operates by schedule and is available for assembled backup device and DB online backup.
NetBackup (Symantec)	This is superior backup tool of BackupExec which realizes integrated control/management in a heterogeneous platform environment. This is available for large scale system such as mission critical operations. This supports open file backup and Disaster Recovery as standard. This is available for DB online backup, etc.
NetVault (BakBone)	This is backup tool of PC server. This is used on Linux/Windows and available for device of schedule management and assembled backup device, and DB online backup, etc.
NetWorker (EMC)	This is available for small to large scale system and realizes integrated backup system in a multi-platform environment. This enables backup and restoration of Oracle, SQLServer and NAS. In addition, this is available for every type of backup environment, including virtualized environment such as Hyper-V and clustering of backup server.

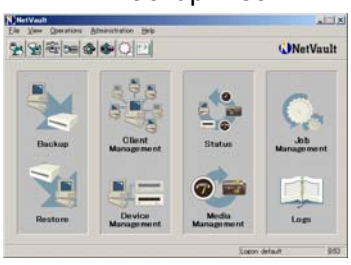


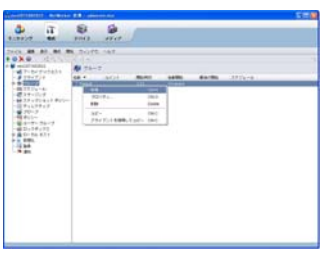
ARCserve



BackupExec







Power Management

Failure of commercial power supply is one of major causes of system stop.
In addition to power failure and temporary blackout, voltage reduction, electrical overload power distribution, failure in power facility, etc. may cause system failure.
Uninterruptible Power System (UPS) automatically supplies power from the battery when voltage of commercial power supply commonly used starts dropping because of power failure or temporary blackout and thus prevents the system from being stopped. System administrator can save files and perform necessary processes while power is supplied. UPS also reduces the variation of voltage and electric current and extends lifespan of the power device, resulting in contributing to increasing the mean time between failures. This can also achieve automatic and unattended operation by schedule, etc.

Network Management

By using NEC ESMPRO Manager and NEC ESMPRO Agent, error packet monitoring of LAN connected to the server can be performed. By using separately sold WebSAM NetvisorPro on Windows version, the entire network can be managed.

Remote Management

By using EXPRESSSCOPE® Engine SP2 and NEC ESMPRO Manager included in the server as standard, the remote monitoring and management of the server through LAN or WAN can be performed.
EXPRESSSCOPE® Engine 2 is realized by using the LSI for system management. The following are the management functions provided by EXPRESSSCOPE® Engine SP2.

- Monitoring power unit
- Monitoring temperature, voltage, fan and electric power
- Function of creating System Event Log (SEL) at hardware failure
- Monitoring OS stall by watchdog timer
- Report process after OS stop error occurred
- Remote control using web browser (resetting server, power-ON/OFF, checking system event log(SEL))
- Remote KVM function
- Remote control and central management of multiple servers by NEC ESMPRO Manager through LAN/WAN

NOTE :
Measured values of temperature, voltage, fan and electric power have a margin of error. The margin may become 10% or more depending on the operation environment.

Operation Mode

The server supports the following operation modes, and these modes can be set and changed.

Each setting can be changed on EXPRESSSCOPE® Monitor, BIOS SETUP, and Web Console. Refer to the corresponding section of **"Hardware"** for details on the setting procedure, etc.

System (Platform) Level Setting

DVD/USB Setting

Operation Mode	Default	Option	Setting Procedure
Switch DVD and Front USB • Set which of the server is used for the DVD drive in the front of the server and the USB port on A1080a-D model.	Server 1	Server 1, Server 2	EXPRESSSCOPE® Monitor → System Menu System Web Console → Settings → Hardware Settings

Power Related

Operation Mode	Default	Option	Setting Procedure
Power Redundancy • Power redundancy setting	N+1	2N, N+1, N	System Web Console → Settings → Mode Settings
Policy when Power Redundancy Lost • Set processes when power redundancy is lost (priority on performance/keeping redundancy/recovering redundancy)	Performance	Performance, Keep, Recover	System Web Console → Settings → Mode Settings
Processor Power Control • Set processor power consumption control	Passive	Passive, Active	System Web Console → Settings → Mode Settings

Other

Operation Mode	Default	Option	Setting Procedure
Maintenance Mode • Set it is under maintenance (Report is stopped while this mode is set)	Disable	Enable, Disable	EXPRESSSCOPE® Monitor → System Menu System Web Console → Settings → Mode Settings

Core Status RAS Mode • Set Core RAS function control	Disable	Enable,	System Web Console → Settings → Mode Settings

Server Level Setting

OS Related

Operation Mode	Default	Option	Setting Procedure
Memory Addressing Size • Set memory addressing size	44bit	44bit, 40bit	Server Web Console → Settings → Mode Settings

Boot Related

Operation Mode	Default	Option	Setting Procedure
Boot EFI • Set EFI boot	Disable	Enable, Disable	Server Web Console → Settings → Mode Settings
Reset Policy • Set reset policy	Cold	Cold, Warm	Server Web Console → Settings → Mode Settings

Memory Related

Operation Mode	Default	Option	Setting Procedure
Memory Mirroring • Set memory mirroring	Disable	Disable, Socket Mirroring, PMM Mirroring	Server Web Console → Settings → Mode Settings
Memory Sparing • Set memory sparing	Disable	Enable, Disable	Server Web Console → Settings → Mode Settings
Memory Interleave • Set memory interleave	Intra	Disable, Intra, Inter(4way), Inter(Max)	Server Web Console → Settings → Mode Settings
Memory Channel Selection • Set memory channel selection	Quad	Quad, Dual	Server Web Console → Settings → Mode Settings
NUMA configuration • Set to enable/disable NUMA (Non Uniform Memory Access)	Enable	Enable, Disable	BIOS SETUP → Chipset Menu
DDR Speed • Set memory clock speed	Auto	Auto, Force DDR3 800, Force DDR3 978, ···	BIOS SETUP → Chipset Menu

Processor Related

Operation Mode	Default	Option	Setting Procedure
Hyper-Threading Technology • Set to enable/disable Intel® Hyper Threading Technology function	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Execute Disable Bit • Set to enable/disable processor Execute Disable Bit	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Hardware Prefetcher • Set to enable/disable processor hardware prefetcher function.	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Adjacent Cache Line Prefetcher • Set to enable/disable Cache line prefetcher function adjacent to the processor.	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Virtualization Technology • Set to enable/disable Intel® Virtualization Technology function	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Power Technology • Set processor power management function	Energy Efficient	Disable, Energy Efficient, Custom	BIOS SETUP → Advanced Menu
Intel Turbo Boost Technology • Set to enable/disable Intel® Turbo Boost Technology	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
CPU C3 report • Set to enable/disable CPU C3(ACPI C2) report function to OS	Disable	Disable, ACPI C-2, ACPI C-3	BIOS SETUP → Advanced Menu
Package C State limit • Set to enable/disable Package C State Limit option function	No Limit	C0, C1, C3,No Limit	BIOS SETUP → Advanced Menu

I/O Related

Operation Mode	Default	Option	Setting Procedure
Wake On LAN • Set to enable/disable Wake On LAN	Enable	Enable, Disable	Server Web Console → Settings → Mode Settings
PCI Slot 1 - 14 OpROM • Set to enable/disable BIOS installed on the device (board) connected to the PCI bus	Slot1,14 =Enable Slot2 - 13 =Disable	Enable, Disable	BIOS SETUP → Advanced Menu
Launch PXE/iSCSI ROM • Set to enable/disable BIOS expanding of legacy network device	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Launch Storage ROM • Set to enable/disable BIOS expanding of large capacity legacy storage device	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
LAN Controller • Set to enable/disable LAN controller	Enable	Enable, Disable	BIOS SETUP → Chipset Menu
LAN1 Option ROM Scan • Set to enable/disable BIOS installed on the LAN 1 controller	Enable	Enable, Disable	BIOS SETUP → Chipset Menu
LAN2 Option ROM Scan • Set to enable/disable BIOS installed on the LAN 2 controller	Enable	Enable, Disable	BIOS SETUP → Chipset Menu

Stall Monitoring Related

Operation Mode	Default	Option	Setting Procedure
BIOS POST Stall Policy • Set BIOS/POST stall monitoring	10 minutes	1 – 60 minute(s)	Server Web Console → Settings → Mode Settings
OpROM Stall Policy • Set OpROM stall monitoring	Disable	Enable, Disable	Server Web Console → Settings → Mode Settings
OS Boot Stall Policy • Set OS boot stall monitoring	Disable	Enable, Disable, 1 – 100 minute	Server Web Console → Settings → Mode Settings
Failure Flow Stall Policy • Set failure process stall monitoring	30 minutes	Enable, Disable, 1 – 60 minute	Server Web Console → Settings → Mode Settings
Shutdown Stall Policy • Set shutdown stall monitoring	10 minutes	Enable, Disable 1 – 60 minute	Server Web Console → Settings → Mode Settings

Fault Handling Related

Operation Mode	Default	Option	Setting Procedure
Degraded Partition Boot Policy • Set whether to boot the server with degradation	Boot	Boot, not Boot	Server Web Console → Settings → Mode Settings
Failing Unit Removal • Set to remove failed unit	Disable failing units	Enable failing units, Disable failing units	Server Web Console → Settings → Mode Settings
Partition Boot Retry Times • Set boot retry count	5 times	0 - 9 times	Server Web Console → Settings → Mode Settings
WHEA Support • Set to enable/disable WHEA (Windows Hardware Error Architecture) function	Enabled	Enabled, Disabled	BIOS SETUP → Advanced Menu
Processor Error Mode • Set Processor Error Mode	LOM	LOM, Poison, Poison+Viral	BIOS SETUP → Advanced Menu
PERR# Generation • Enable/Disable PCI device parity error occurrence	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
SERR# Generation • Enable/Disable PCI device system error occurrence	Enable	Enable, Disable	BIOS SETUP → Advanced Menu

Other

Operation Mode	Default	Option	Setting Procedure
Serial Port Enable • Set to enable/disable serial port	Enable	Enable, Disable	BIOS SETUP → Advanced Menu
Serial Port Settings • Set base address of serial port and interruption (If Auto is specified, BIOS automatically sets.)	Auto	Auto, etc…	BIOS SETUP → Advanced Menu
SR IOV Support • Set to enable/disable Single Root I/O Virtualization	Disable	Enable, Disable	BIOS SETUP → Chipset Menu
Intel VT-d • Set to enable/disable Intel® Virtualization Technology for Directed I/O	Enable	Enable, Disable	BIOS SETUP → Chipset Menu
Disable USB Port • Set to enable/disable USB port (When [Front] is selected, USB	Disable	Disable, Front, Rear,	BIOS SETUP → Advanced Menu

port on the front of the server cannot be used. When [Rear] is selected, USB on the rear of the server cannot be used. When [Front + Rear] is selected, both USB ports on the front and rear of the server cannot be used. When [All] is selected, all the USB ports cannot be used. Note: When [All] is selected, internal USB port becomes disabled as well. When using devices connected to the internal USB port such as internal DVD drive, virtual floppy drive, virtual CD-ROM drive or remote KVM, select other than [All].)		Internal, Front+Rear, ···	
RTC Synch • Set whether to synchronize the date and time of Service Processor (set by remote console) with the system date and time (set by BIOS) (When Enable is set, the system date and time is reflected in Service Processor date and time at OS booting. (Reflected only when booted)	Enable	Enable, Disable	BIOS SETUP →Main Menu

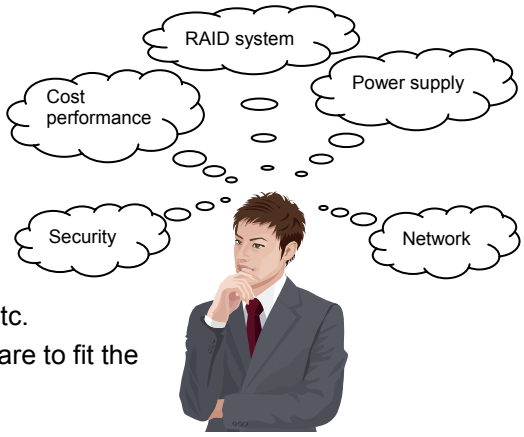
Introducing the Server

This section describes important points for introducing the server.

Important Points for System Configuration

Make sure to consider the following points to configure the system before starting the setup.

Operation Procedures



As described in **“Features of the Server"**, various hardware functions and attached software on operation management and reliability are provided for the server. In various phases of system life cycle, consider “what hardware function and attached software should be used, how the system should be operated,” etc. Install and configure the necessary hardware and software to fit the purpose.

Operation Status/Failure Monitoring and Maintenance

The server operation status and failure can be monitored remotely and failures can be prevented preliminarily or recovered in a short period of time by using “NEC ESMPRO Manager” and “NEC ESMPRO Agent” attached to the server as standard.
Make sure to use “NEC ESMPRO Manager” and “NEC ESMPRO Agent” to protect the system from unexpected trouble.

Notes on System Configuration and Operation

Make sure to confirm the following points before configuring and operating the actual system.

Check the Shipped Status

Make sure to check the following points for shipped status of the server you purchased before introducing it.

- Peripheral device connected to the hardware installed on the server
- System and server configuration

Check the Setup Procedure

For configuring the system, setup of the server is a requisite point. Make sure to consider carefully which procedure for setup should be selected before setting up the server.
If unnecessary procedure is included or necessary procedure is omitted, not only the system configuring schedule lags, but also the stable operation and function of the whole system provided by the server cannot be fully realized.

1. Considering Operation Policy and Countermeasures for Failure

Operation policy, security and countermeasures for failure differ depending on function provided by hardware of the server and the OS to be used.
Make sure to configure the system taking full advantage of functions provided by hardware and software of the server described in **“Features of the Server"**. It is recommended to consult the maintenance service company or NEC sales representative for configuring the system.

2. Hardware Setup

Make sure to perform the setup procedure until the server can be powered On. Set up the server in the same status as when the server is operating to start “System Setup” described in the next page. Refer to the procedure in page 18 for details.
Hardware setup includes installing the rack, installing optional products, connecting peripheral devices, and setting up internal parameters such as BIOS setting. Setting parameters to match your environment is one of the important procedures to take advantage of functions linking with the OS and the management software.

3. System Setup

When the hardware setup such as installation of optional products or BIOS setting is completed, proceed to set the hard disk drive partition, set the RAID system, and install the OS and the management software.

<When setting up from not-yet-installed state - setting up again (Windows)>

In the server, setup from not-yet-installed state and re-setup are supported by the following OS (Windows).

- Windows Server® 2008 Enterprise x64 Edition
  (Hereinafter called “Windows Server 2008”)

- Windows Server® 2008 Datacenter x64 Edition
  (Hereinafter called “Windows Server 2008”)

- Windows Server® 2008 R2 Enterprise
  (Hereinafter called “Windows Server 2008 R2”)

- Windows Server® 2008 R2 Datacenter
  (Hereinafter called “Windows Server 2008 R2”)

Setup from not-yet-installed state and re-setup differs depending on the OS to be installed.

● When installing Windows Server 2008

Refer to the online document “Microsoft® Windows Server® 2008 Installation Guide“ included in the attached ”NEC EXPRESSBUILDER” to perform setup manually.

● When installing Windows Server 2008 R2

Refer to the online document “Microsoft® Windows Server® 2008 R2 Installation Guide” included in the attached “NEC EXPRESSBUILDER” DVD to perform setup manually.

4. Setup for Troubleshooting

Set up the server to prepare troubleshooting for judging or resolving the cause of failure immediately. The setup for Windows Server 2008 and Windows Server 2008 R2 are described in this Guide.

5. Installation and Setup of Management Software

Set the each parameter of installed software to match your hardware/network environment. Define the management PC on a network connectable to the server and install the software for the management monitoring.

Refer to **"Software"** for details.

6. System Information Backup

After changing the hardware configuration or changing the BIOS setting, execute "**Save Settings**" of "**Save or Restore**" on "**Configuration**" menu of the Server Web Console to back up the system information on the management module. When the management module fails, the status of the module can be recovered to the status before the failure by restoring the backed up information after the module replacement.

Using Each Operation Management Function

For executing the operation management such as monitoring failures on the server, NEC ESMPRO Agent and NEC ESMPRO Manager, or software sold separately is required.
Follow the instruction of the setup procedure described later or the description of the software (when sold separately) to install and set each software.

Make sure to confirm the following points when using each operation management function.

Using Server Management Function

- Setting threshold values, etc, on NEC ESMPRO Manager and on NEC ESMPRO Agent is required depending on the monitoring items such as the usage monitoring of each component of the server or the stall monitoring of OS. Refer to the descriptions of each software or online help for details.

Using Storage Management Function

The following software is required in addition to the RAID controller (option) and NEC ESMPRO Agent to execute RAID system management.

- When using RAID system
  Install Universal RAID Utility when using the RAID system.
  When using option board, refer to the attached manuals of each board for installation.

- When using backup file system
  Make sure to clean up the head of the drive periodically by the cleaning tape when using the tape drive. Dirt on the head of the drive causes reading and writing error and the data cannot be backed up or restored properly.

Using Power Management Function

- Setting up the dedicated software for control is required to use Uninterruptible Power System (UPS).

- Change the setting of the UPS to match your environment for automatic operation or automatic booting at the recovery from power failure when using the UPS.

Before Starting Setup

This section describes the setup procedure and the pages to be referred to. Start the setup from the hardware.

Service Pack Supported by NEC EXPRESSBUILDER

“NEC EXPRESSBUILDER” DVD attached to the server supports the following installation media and the combination with Service Pack.

- Windows Server 2008
  - OS installation media (Service Pack 2 included version)
- Windows Server 2008 R2
  - OS installation media (Service Pack not included)

Option Board Supported by NEC EXPRESSBUILDER

The following are option boards supported by the attached “NEC EXPRESSBUILDER” DVD. When the following boards are installed, refer to the attached description of the option boards for the setup.

<For Windows Server 2008>

● Option board supporting the OS installation on NEC EXPRESSBUILDER
- NE3104-001 for internal HDD/SSD 6Gbps SAS RAID controller LSI/Mega RAID SAS 9260-8i

● Other optional products
- NE3108-201 External 3Gbps SAS controller (Not RAID)
- NE3108-202 External 6Gbps SAS controller (Not RAID)
- NE3108-211 External 3Gbps SAS controller (RAID)
- NE3108-103 8G/1P FC Emulex/LPe1250
- NE3108-104 8G/2P FC Emulex/LPe12002
- NE3108-001 1P 1000Base-T
- NE3108-002 2P 1000Base-T
- NE3108-003 4P 1000Base-T

<For Windows Server 2008 R2>

● Option board supporting the OS installation on “NEC EXPRESSBUILDER”
- NE3104-001 for internal HDD/SSD 6Gbps SAS RAID controller LSI/Mega RAID SAS 9260-8i

● Other optional products
- NE3108-201 External 3Gbps SAS controller (Not RAID)
- NE3108-202 External 6Gbps SAS controller (Not RAID)
- NE3108-211 External 3Gbps SAS controller (RAID)
- NE3108-102 4G/2P FC Emulex/LPe11002
- NE3108-103 8G/1P FC Emulex/LPe1250
- NE3108-104 8G/2P FC Emulex/LPe12002
- NE3108-001 1P 1000Base-T
- NE3108-002 2P 1000Base-T
- NE3108-003 4P 1000Base-T

Setup

This section describes the setup procedure and the pages to be referred to.

Setup of Management PC

The management PC is used control the system from the Web browser remotely, and views the configuration information or log information. You need to prepare at least one unit of PC that satisfies the following conditions.
The management PC is used not only in daily operation but also in setup of the server. Preparing the management PC before setting up, you can smoothly setup the server.

- CPU : 1GHz or faster
- Memory : 1GB or larger
- HDD : 10GB or more free space
- OS : Windows XP
  Windows Vista
  Windows 2008 Server R2
  Windows 2008 Server SP1/SP2
  Windows 7
  RedHat Enterprise Linux (version 5)
- Resolution : 1152 × 864 or more
- Browser : IE7.0 or later (When Windows OS)
  Firefox2.0 or later (When Linux OS)
- Network management : Configure the management PC so that it can connect with the management LAN port of the server.
- Java : Oracle Java JRE 6 ,Install in the management PC.

IMPORTANT :

- The maintenance personnel will use the management PC to collect system logs and recovery operation after replacement of component. Accordingly, consider the installation location and network environment appropriately to the maintenance personnel.
- For example, System Management LAN is isolated from the public LAN using Firewall. This configuration helps maintaining a security for the management LAN while offering straightforward access for authorized users.

Setup of Server

Setup the sever in the following procedure

1. Install the rack

Refer to chapter 2 **"Hardware"** - **"Install the rack".**

2. Install the optional units (If you bout separately)

Refer to chapter 2 **"Hardware"** - **"Installing/Removing optional parts/".**

3. Install the server in the rack

Refer to chapter 2 **"Hardware"** - **"Mounting/Unmounting the server to/from Rack".**

4. Connect peripheral devices such as display unit, keyboard, network devices to the server.

Refer to chapter 2 **"Hardware"** - **"Connection".**

IMPORTANT :
Do not connect the LAN cable to the management LAN port.
Connect LAN cable after the management LAN port has been configured.

5. Connect the power cord to the server and the PDU, then turn the AC power on.

Refer to chapter 2 **"Hardware"** - **"Power Code Connection".**

6. Configure the management LAN port on the server using the menu system of EXPRESSSCOPE® Monitor.

Refer to chapter 2 **"Hardware"** - **"NEC EXPRESSSCOPE® Monitor".**

7. Connect the LAN cable to the management LAN port.

Refer to chapter 2 **"Hardware"** - **"Connection".**

8. Connect with the remote console to make provide various settings.

Refer to chapter 2 **“Hardware”** - **“Web Console Function”.**

9. Power on the server and start Partition.

Refer to chapter 2 **“Hardware”** - **“Power-On and Booting Server”.**

10. Change BIOS settings according to configuration and purpose of the system.

Refer to chapter 2 **“Hardware”** - **“BIOS Setup” and appendix C “Settings for each OS”.**

IMPORTANT :
There is also a setup of the date or time among the setup of BIOS.
Be sure to check whether it is set up correctly.

11. Start WebBIOS and create virtual disks.

Refer to chapter 2 **“Hardware”** - **“RAID System Configuration”.**

IMPORTANT:
●Use WebBIOS only for creating a virtual disk to install OS.

12. Install the OS.

(1) Depending on the OS, BIOS settings are needed to be changed from the default settings. Referring to appendix C “Settings for each OS”, change the BIOS settings so that it is suitable for the OS which is being installed.
If the setting is changed, then reboot the system.

(2) Insert the OS install disk into the DVD Drive and reboot the system.

(3) Enter BIOS menu by pressing "SPACE key". From Boot Manager, select "Primary Slave CDROM" and press "Enter". The OS installer starts.

Go on to the next OS setting-up operations.

Setup of OS

After completing the hardware setup, proceed to set up the OS.

Contact the distributor from which you purchased or the maintenance service company for installation procedure of Windows other than Windows Server 2008/Windows Sever 2008 R2.

Setting up Windows Server 2008

After completing the hardware setup, set up Windows Server 2008 and the system.
Refer to **"Introduction"** and **"Hardware"** for the hardware setup procedure.
Refer also to the following online manuals included in the attached "NEC EXPRESSBUILDER" DVD for Windows Server 2008 and the system setup.

- Microsoft® Windows Server® 2008 Enterprise x64 with Service Pack 2/
  Microsoft® Windows Server® 2008 Datacenter x64 with Service Pack 2 Installation Guide

Setting up Windows Server 2008 R2

After completing the hardware setup, set up Windows Server 2008 R2 and the system.
Refer to **"Introduction"** and **"Hardware"** for the hardware setup procedure.
Refer also to the following online manuals included in the attached "NEC EXPRESSBUILDER" DVD for Windows Server 2008 R2 and the system setup.

- Microsoft® Windows Server® 2008 R2 Enterprise/
  Microsoft® Windows Server® 2008 R2 Datacenter Installation Guide

Setting up Other Type of OS

After completing the hardware setup, set up OS and the system.
Refer to **"Introduction"** and **"Hardware"** for the hardware setup procedure.
Refer also to the installation guide separately provided for each OS for the setup procedure of OS and the system.

IMPORTANT:

- **Before starting setup forOS with EXPRESSBUILDER, ensure that all cores in the server is checked as "Valid(Enable)" on the Core Status screen of the System Web Console.**
- **If any core in the server is checked as "Invalid(Disable)", OS setup may not be started.**

(This restriction will be removed in the future.)

Setup for Troubleshooting

Perform the following setup procedure preliminarily to recover from a failure quickly and reliably when a failure occurs.

Setup for Memory Dump

This is a setting for collecting memory dump (debug information) in the server.

IMPORTANT:
Notes on memory dump

- **If a failure occurs after the setting described here, and the server is rebooted to save memory dump, a message indicating insufficient virtual memory may be displayed at the time of booting. However, ignore the message and boot the server. If the server is rebooted at this moment, the memory dump may not be saved properly.**

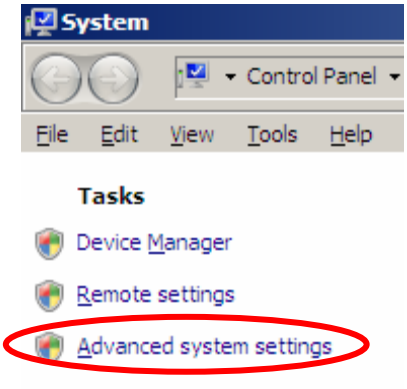
For Windows Server 2008

Follow the procedure below to set up.

1. Go to **"Start → Control Panel"** and click **"System".**

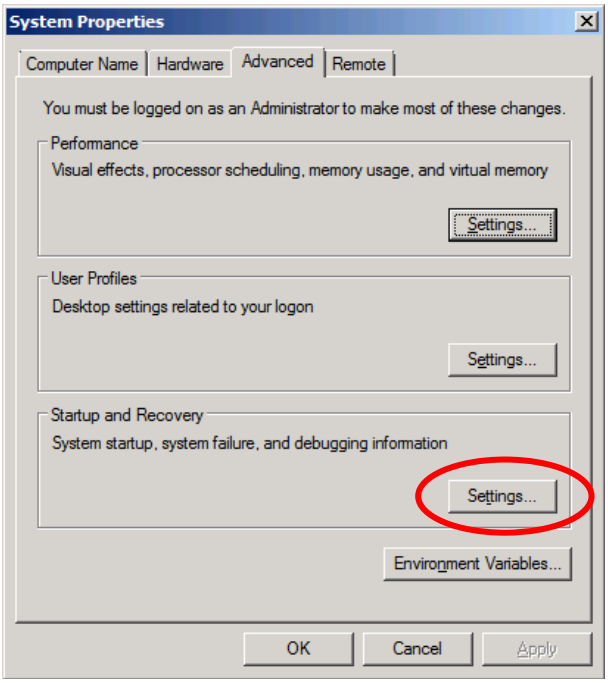
   "System" dialog box is displayed.

2. Click **"Advanced system settings".**



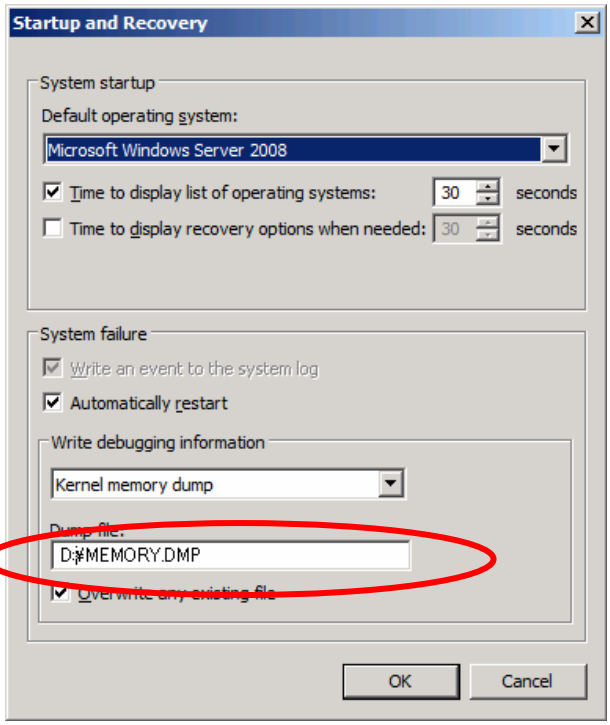
   "System Properties" dialog box is displayed.

3. Click **“Settings”** of **“Startup and Recovery”** box.



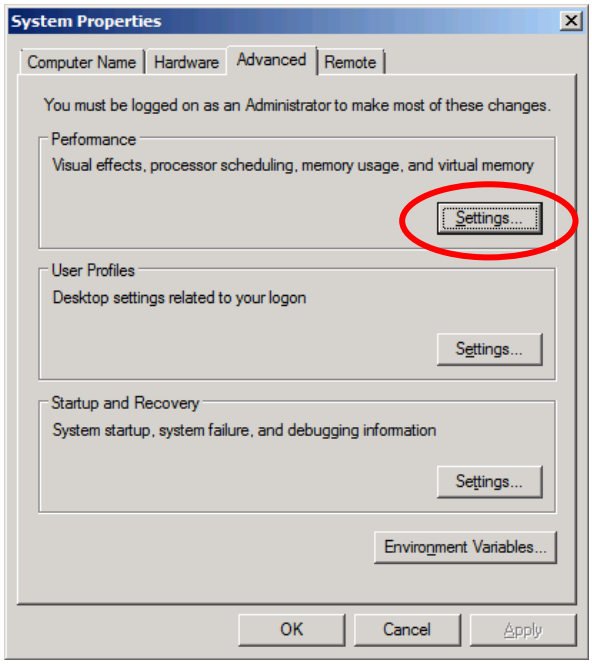
4. Specify a location to write the debug information in the text field of dump file:

<When writing the debug information on the D drive with a file name “MEMORY.DMP”>
D:¥MEMORY.DMP

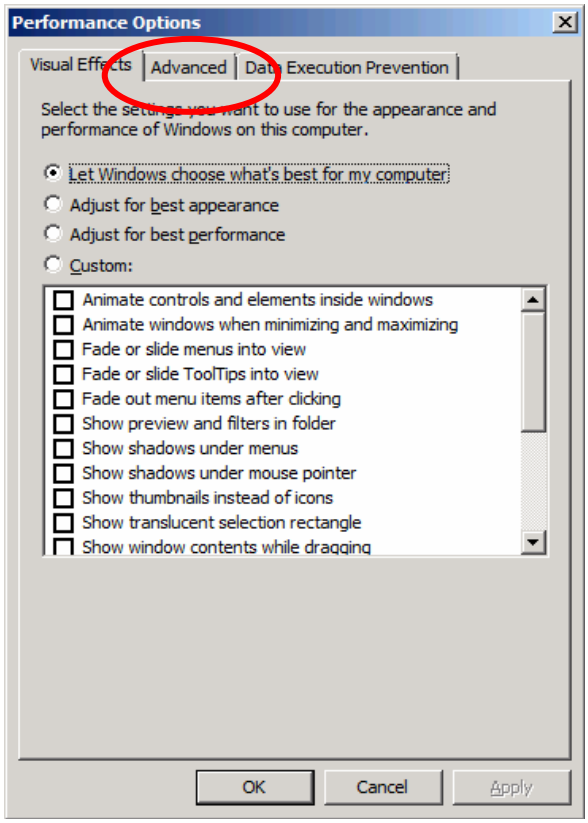


5. Click **“Settings”** in **“Performance”** box.

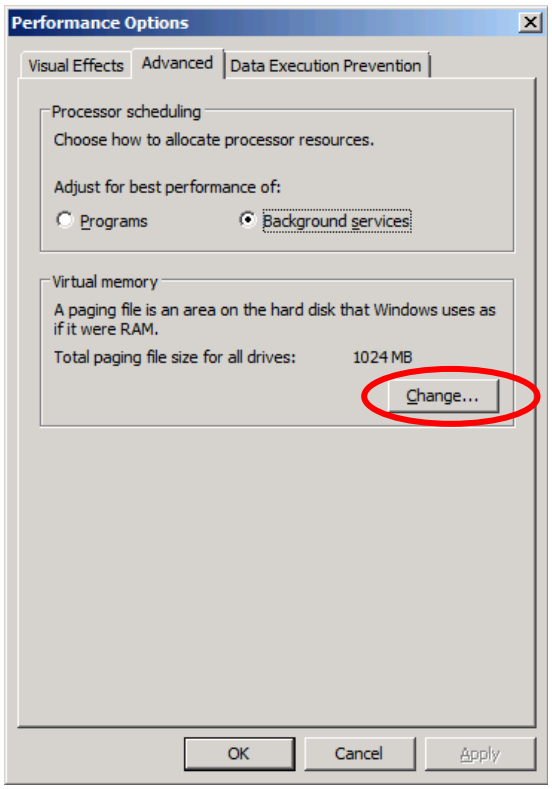
Performance Options screen is displayed.



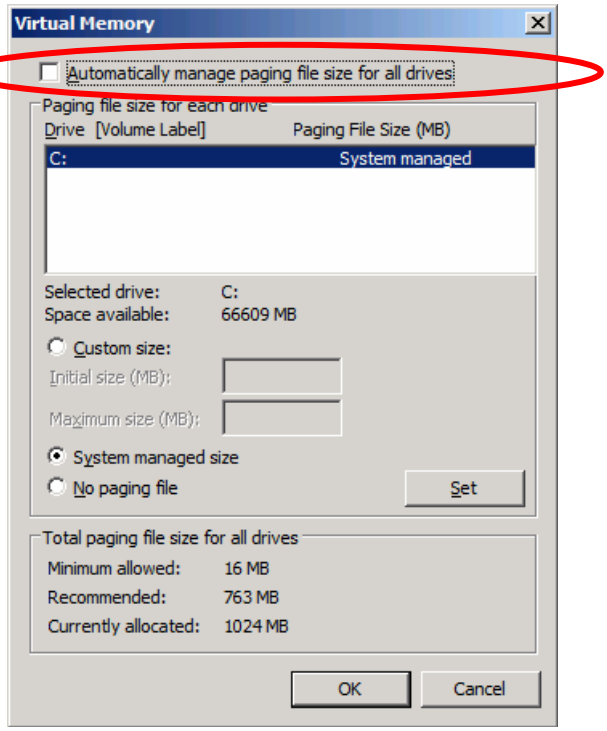
6. Click **“Advanced”** tab of **Performance Options** screen.



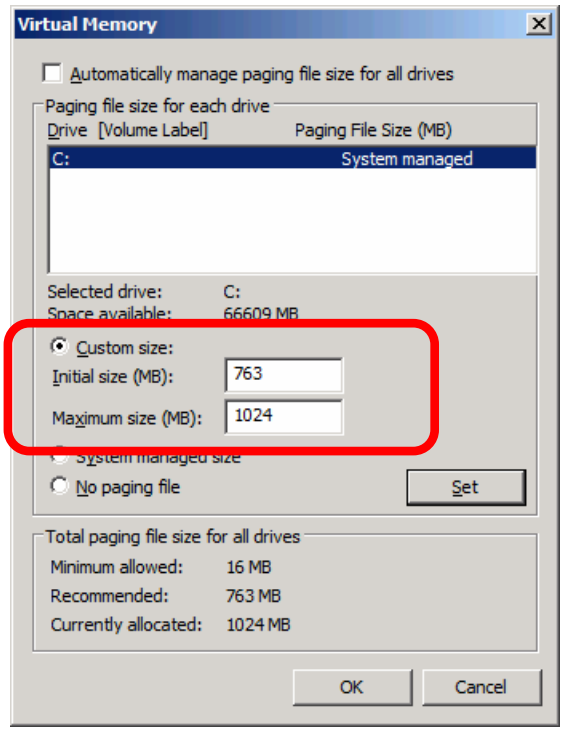
7. Click **“Change”** in **“Virtual memory”** box.



8. Unselect **“Automatically manage paging file size for all drives”** and select **“Custom size”**.



9. Change **“Initial Size”** of **“Paging file size for each drive”** to a size larger than the recommended value described in **“Total paging file size for all drives”**, and change **“Maximum Size”** to a size larger than **“Initial Size”**. Click **“Settings”**.



IMPORTANT

- **The paging file size described above is the recommended size for collecting the debug information (dump file). For the boot volume, the paging file with sufficient initial size for storing the dump file is required. If the size of the paging file becomes insufficient, correct debug information may not be collected because of the insufficient virtual memory. Make sure to set a sufficient paging file size for the whole system.**

- **For more information on "Recommended" value, see "About the System Partition Size", described earlier.**

- **When the memory is additionally installed, set the paging file again to match the memory size.**

10. Click **“OK”**.

A message may be displayed to prompt the system reboot depending on the contents of changed setting.

Follow the message and reboot the server.

This is the end of the procedure.

For Windows Server 2008 R2

Follow the procedure for the setting.

1. Go to **“Start”** and click **“Control Panel”**.

   Control Panel screen is displayed.

2. On **Control Panel** screen, click **“System and Security”**.

   NOTE:
   When “View” is other than “Category”, click “System” on “Control Panel” directly.

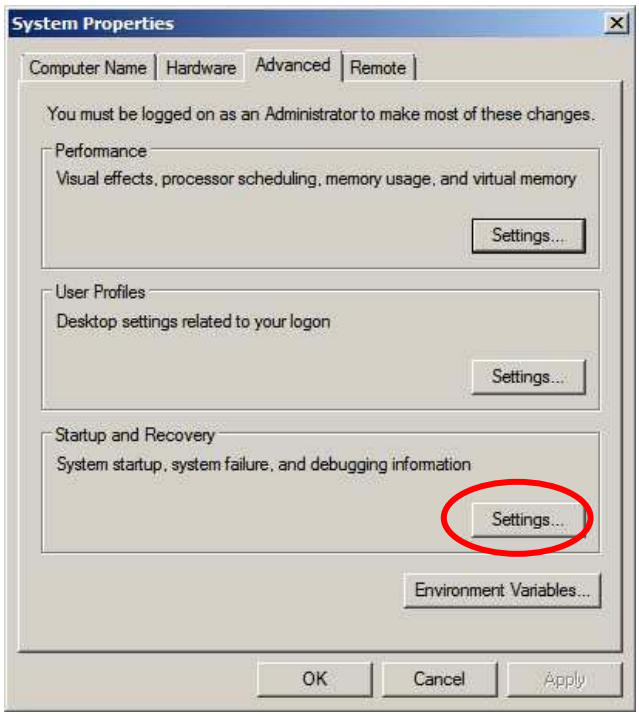
3. Click **“System”**.

4. Click **“Advanced system settings”**.

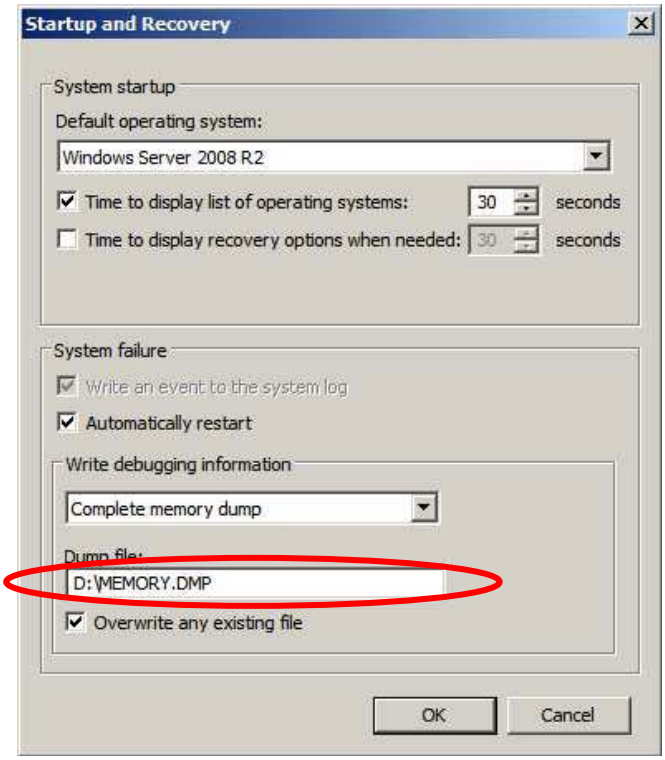


“System Properties” dialog box is displayed.

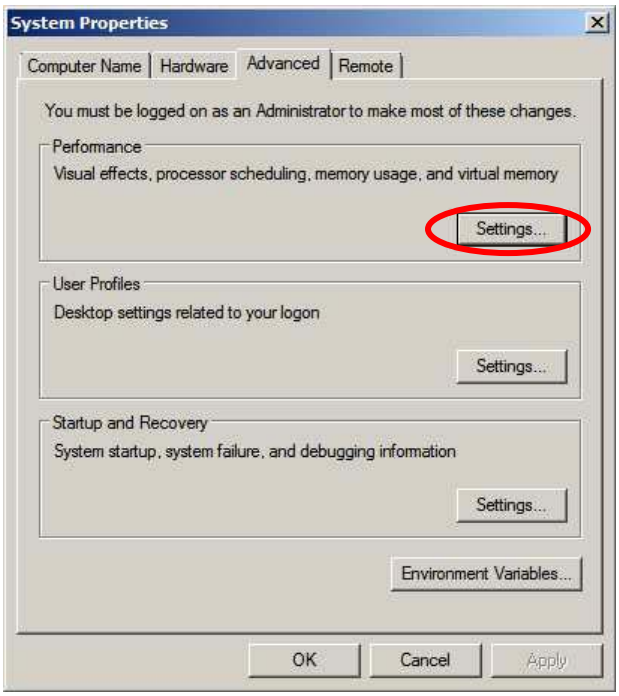
5. Click **“Settings”** of **“Startup and Recovery”** box.



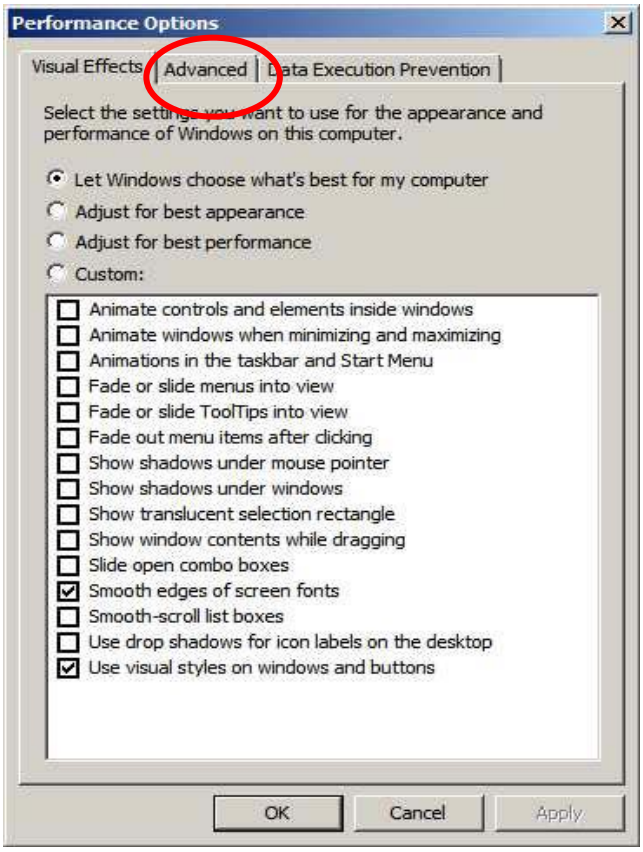
6. Specify a location to write the debug information in the text field of dump file:
<When writing the debug information on the D drive with a file name “MEMORY.DMP”>
D:¥MEMORY.DMP



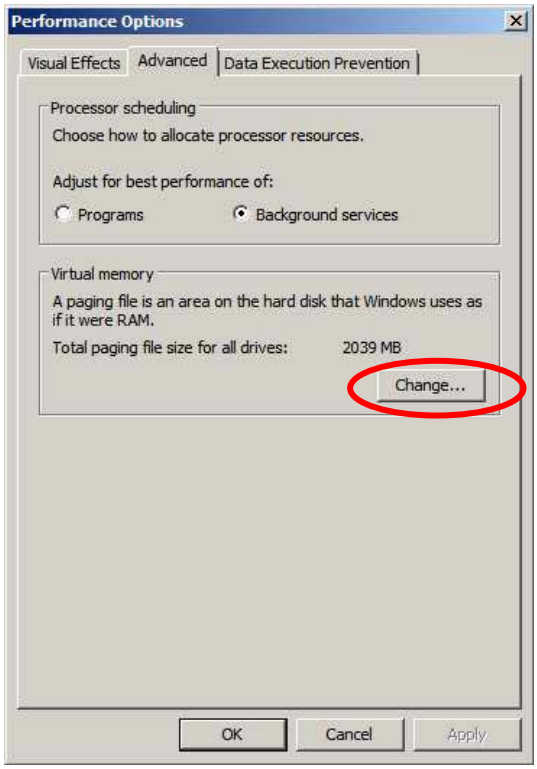
7. Click **“Settings”** in “**Performance”** box.
Performance Options screen is displayed.



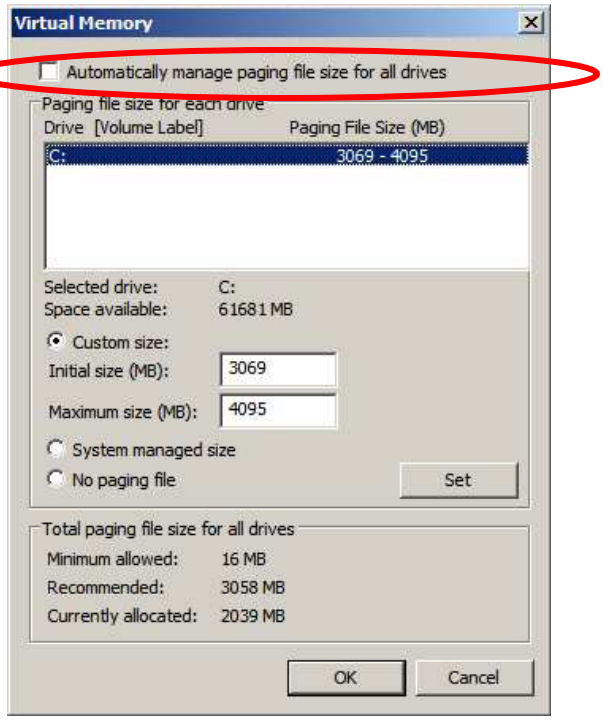
8. Click **“Advanced”** tab of **Performance Options** screen.



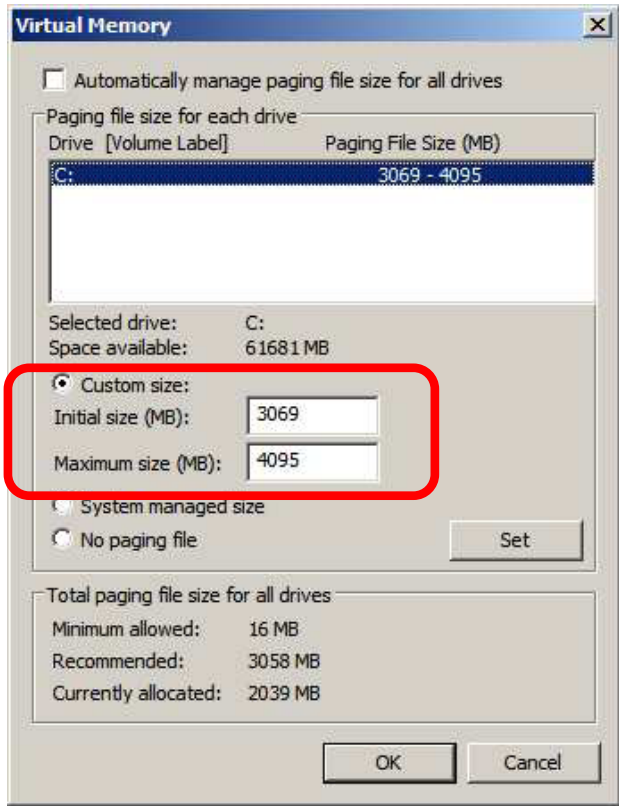
9. Click **“Change”** in **“Virtual memory”** box.



10. Unselect **“Automatically manage paging file size for all drives”** and select **“Custom size”**.



11. Change **“Initial Size”** of **“Paging file size for each drive”** to a size larger than the recommended value described in **“Total paging file size for all drives”**, and change **“Maximum Size”** to a size larger than **“Initial Size”**. Click **“Settings”**.



IMPORTANT:

- **The paging file size described above is the recommended size for collecting the debug information (dump file). For the Windows partition, the paging file with sufficient initial size for storing the dump file is required. If the paging file size becomes insufficient, correct debug information may not be collected because of the insufficient virtual memory. Make sure to set the sufficient size for the paging file for the whole system.**

- **For more information on "Recommended" value, see "About the System Partition Size", described earlier.**

- **When the memory is additionally installed, set the paging file again to match the memory size.**

12. Click **“OK”**.
    A message may be displayed to prompt the system reboot depending on the contents of changed setting.
    Follow the message and reboot the server.

This is the end of the procedure.

Acquiring User-Mode Process Dump

For Windows Server 2008

User-mode process dump is a file recording information when application error occurs. When an application error occurs, acquire the user-mode process dump with the following procedure without ending an error message indicating the error occurred.

1. Right-click on the blank space of the task bar and click **"Task Manager"**, or press **<Ctrl>** + **<Shift>** + **<Esc>** keys to start **"Task Manager"**.
2. Click **"Process"** tab.
3. Right-click on the process name to acquire the dump and click **"Create Dump File"**.
4. The dump file is created in the following folder.
   C:¥Users¥(User name)¥AppData¥Local¥Temp

NOTE:
The folder above may be set as hidden attribute. When the temp folder is not displayed, select "Folder Option" from "Tool" in the explorer, and select "Show hidden files and folders" on "View" tab.

When the user-mode process dump is created, acquire the file from the folder of step 4 shown above.
Refer to the following Microsoft Knowledge Base for the details on how to acquire the user-mode process dump.
"How to create a user-mode process dump file in Windows Server 2008"
http://support.microsoft.com/kb/949180

NOTE:
On Windows Server 2008, Dr. Watson is changed to "Problem Reports and Solutions" and Crash Dump File cannot be collected by using the traditional Dr. Watson. The information of the same level as Crash Dump File can be acquired with the procedure above.

For Windows Server 2008 R2

User-mode process dump is a file recording information when application error occurs. When an application error occurs, acquire the user-mode process dump with the following procedure without ending an error message indicating the error occurred.

1. Right-click on the blank space of the task bar and click **"Task Manager"**, or press **<Ctrl>**+ **<Shift>** + **<Esc>** keys to start **"Task Manager"**.
2. Click **"Process"** tab.
3. Right-click on the process name to acquire the dump and click **"Create Dump File"**.
4. The dump file is created in the following folder.
   C:¥Users¥(User name)¥AppData¥Local¥Temp

NOTE:
The folder above may be set as hidden attribute. When the temp folder is not displayed, select "Folder and Search Options" from "Organize" in the explorer, and select "Show hidden files and folders" on "View" tab.

When the user-mode process dump is created, acquire the file from the folder of step 4 shown above.
Refer to the following Microsoft Knowledge Base for the details on how to acquire the user-mode process dump.
"How to create a user-mode process dump file in Windows Server 2008"
http://support.microsoft.com/kb/949180

NOTE:
On Windows Server 2008, Dr. Watson is changed to "Problem Reports and Solutions" and Crash Dump File cannot be collected by using the traditional Dr. Watson. The information of the same level as Crash Dump File can be acquired with the procedure above.

Installing Network Monitor

Windows Server 2008

Installation Procedure of Network Monitor

NOTE:
Windows Server 2008 does not include Network Monitor. Setting up Microsoft Network Monitor provided by Microsoft is required to collect a network trace in Windows Server 2008.

1. Download Network Monitor from Microsoft website.
   Information about Network Monitor 3
   http://support.microsoft.com/kb/933741/en-us

2. Execute the downloaded file and start the installer.
   Follow the instructions on the screen to install.

NOTE:
When "Security Alert" pop-up is displayed, click "Run". On the screen to select setup method, select "Complete".

This is the end of the setting up of Network Monitor.

NOTE:
When "Security Alert" pop-up is displayed, click "Run". On the screen to select setup method, select "Complete".

Setup Procedure of Network Monitor

1. Start up Microsoft Network Monitor from **Start Menu**.

2. Expand **"Create a new capture tab..."** from **"Start Page"** or **"New"** of **File Menu**, and click **"Capture..."**.
   A new tab for collecting the network trace is created.

3. Select a network to be acquired on **Select Networks** screen.

4. Click **"Start"** on **Capture Menu** to start collecting the network trace.

5. Click **"Stop"** on **Capture Menu** to stop collecting the network trace.

6. Select **“Save As... ”** of **File Menu**.

Save As screen is displayed. After selecting **“All captured Frames”** in **“Frame selection”**, specify an appropriate folder and a file name.

NOTE:
The following folder is specified by default.
C:¥Users¥<User name>¥Documents¥Network Monitor 3¥Captures

7. Click **“Save”**.

The file is created in the folder specified in step 6.

For Windows Server 2008 R2

Installation Procedure of Network Monitor

NOTE:
Windows Server 2008 R2 does not include Network Monitor. Setting up Microsoft Network Monitor provided by Microsoft is required to collect a network trace in Windows Server 2008 R2.

1. Download Network Monitor from Microsoft website.
   Information about Network Monitor 3
   http://support.microsoft.com/kb/933741/en-us

2. Execute the downloaded file and start the installer.
   Follow the instructions on the screen to install.

NOTE:
When "Security Alert" pop-up is displayed, click "Run". On the screen to select setup method, select "Complete".

This is the end of the setting up of Network Monitor.

NOTE:
When "Security Alert" pop-up is displayed, click "Run". On the screen to select setup method, select "Complete".

Setup Procedure of Network Monitor

1. Start up Microsoft Network Monitor from **Start Menu**.

2. Expand "**Create a new capture tab...**" from **"Start Page"** or **"New"** of **File Menu**, and click **"Capture..."**.
   A new tab for collecting the network trace is created.

3. Select a network to be the acquired on **Select Networks** screen.

4. Click **"Start"** on **Capture Menu** to start collecting the network trace.

5. Click **"Stop"** on **Capture Menu** to stop collecting the network trace.

6. Select **“Save As... ”** of **File Menu**.
   Save As screen is displayed. After selecting **“All captured Frames”** in **“Frame selection”**, specify an appropriate folder and a file name.

> **NOTE:**
> **The following folder is specified by default.**
> **C:¥Users¥<User name>¥Documents¥Network Monitor 3¥Captures**

7. Click **“Save”**.
   The file is created in the folder specified in step 6.

Advanced Setup

Re-Setup Procedure when Multiple Logical Drives Exist

Make sure to back up the data to prepare for a failure before starting the setup again.

Re-Setup Procedure

1. Start the manual setup by following the procedure in this Guide and ”Installation Guide”.

2. When the following message is displayed, select a partition that the OS to be set up.

Where do you want to install Windows?

IMPORTANT:
Drive letters for the system volume and the boot volume cannot be changed after completing the setup. Make sure the appropriate drive letters are allocated on this screen before continuing the setup.

3. Continue the manual setup by following the procedure in this document and ”Installation Guide”.

   This is the end of the procedure.

NOTE:
After completing the setup, the drive letters may be different from the ones before the re-setup. When the drive letters need to be corrected, follow the “Change Procedure of Drive Letter” described in the next page to change the drive letters.

Change Procedure of Drive Letter

IMPORTANT:
Note that drive letters for the system volume or the boot volume that the OS is installed cannot be changed with the following procedure.

For Windows Server 2008

1. From **Start Menu**, right-click on **"My Computer"** to select **"Manage"** and start **"Server Manager"**.
2. On the left side of the screen, select **"Storage → Disk Management"**.
3. Right-click on the volume that the drive letter is to be changed and select **"Change Drive Letter and Path"**.
4. Click **"Change"**.
5. Click **"Assign the following drive letter"** and select a drive letter to be assigned to.
6. Click **"OK"**.
7. When the following message is displayed, click **"Yes"**.

   > Some programs that rely on drive letters might not run correctly. Do you want to continue?

8. End **Server Manager**.

This is the end of the procedure.

For Windows Server 2008 R2

1. From **Start Menu**, right click on **"My Computer"** to select **"Manage"** and start **"Server Manager"**.
2. On the left side of the screen, select **"Storage → Disk Management"**.
3. Right-click on the volume that the drive letter is to be changed and select **"Change Drive Letter and Path"**.
4. Click **"Change"**.
5. Click **"Assign the following drive letter"** and select a drive letter to be assigned to.
6. Click **"OK"**.
7. When the following message is displayed, click **"Yes"**.

   > Some programs that rely on drive letters might not run correctly. Do you want to continue?

8. End **Server Manager**.

This is the end of the procedure.

- Memo -

NEC Express5800 Series
Express5800/A1080a-S, A1080a-D, A1080a-E

2 Hardware

This chapter describes hardware of the server.

“Names and Functions of Components” (page 89)

This section describes names and functions for each part of the server.

“Installation and Connection” (page 134)

This section describes a location suitable for installing the server, how to mount the server on mounting a rack mount chassis, and how to connect connecters.

“Basic Operation” (page 170)

Describes how to turn ON/OFF the power and handle DVDs, etc.

“Upgrading your server” (page 185)

Refer to this section when mounting options on the server.

“NEC EXPRESSSCOPE® Monitor” (page 215)

Enables a user to turn ON/OFF power of the server, to check the system information and status, and to set various networks.

“BIOS Setup” (page 274)

Describes how to set BIOS using the dedicated utility.

“RAID System Configuration” (page 314)

Describes how to use internal hard disk drives as a RAID system with using RAID controller (Mega RAID ROMB).

“Remote Management Function” (page 367)

Describes how to control the server from a remote location, including monitoring by EXPRESSSCOPE® Engine SP2 installed on the server as standard for system management and remote control by management network.

“Web Console Function” (page 368)

Enables a user to operate the target management server remotely and to check the status without OS operating.

“Reset and Clear” (page 501)

Describes how to reset the server and how to clear the internal memory (CMOS).

Names and Functions of Components

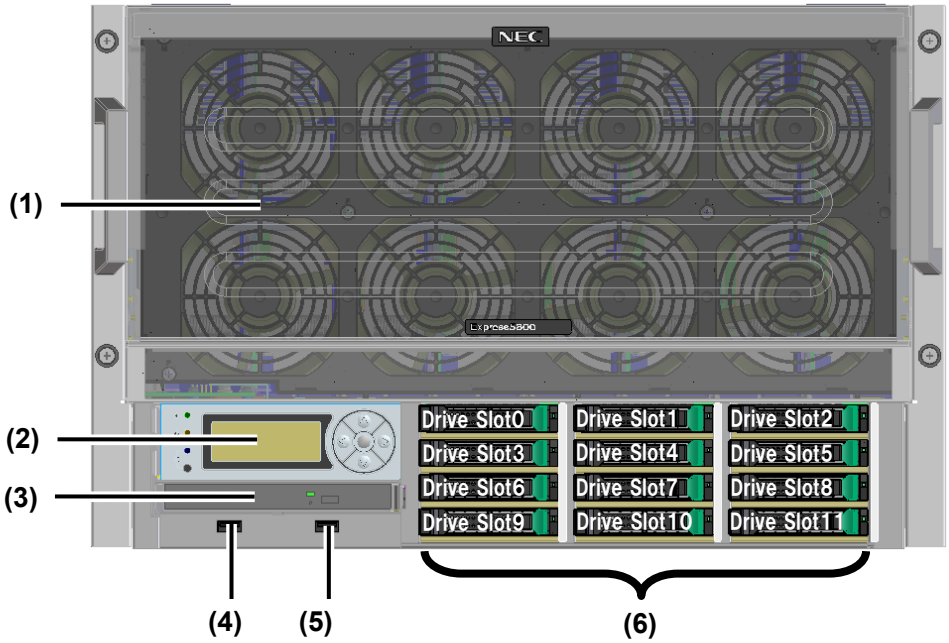
Names and functions of the components are shown below.

External View



(1) Top cover
(2) Fan module 1 (First row from the front side of Server)
(3) Fan module 2(Second row from the front side of Server)
(4) Hndle(Tow handles are in the each side of the server.)

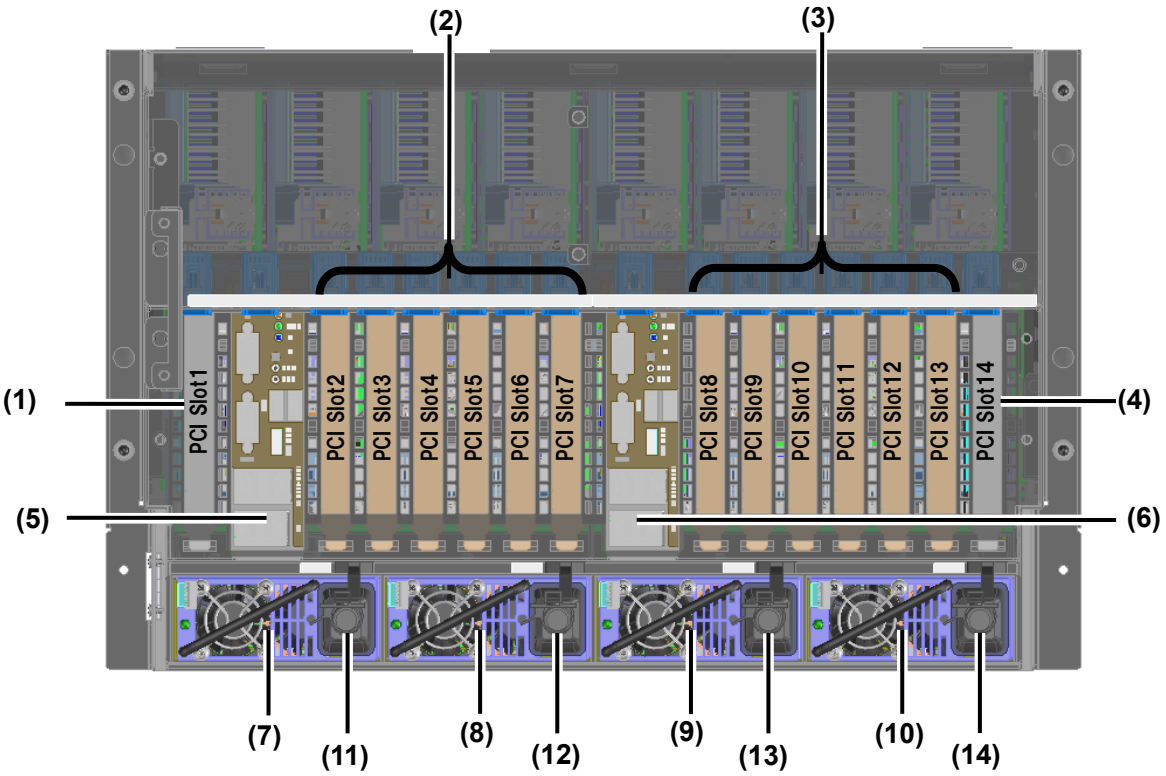
Front View



(1) Fan module 1 (First row of the front side of Server)
Fan module 2 (Second row of the front side of Server)
(2) EXPRESSSCOPE® Monitor
(3) DVD drive
(4) USB port
(5) USB port
(6) Internal disk drive
Drive Slot0 ～ Drive Slot 11

Slot number allocated to HDD such as DriveSlot only starts from the number “0”.

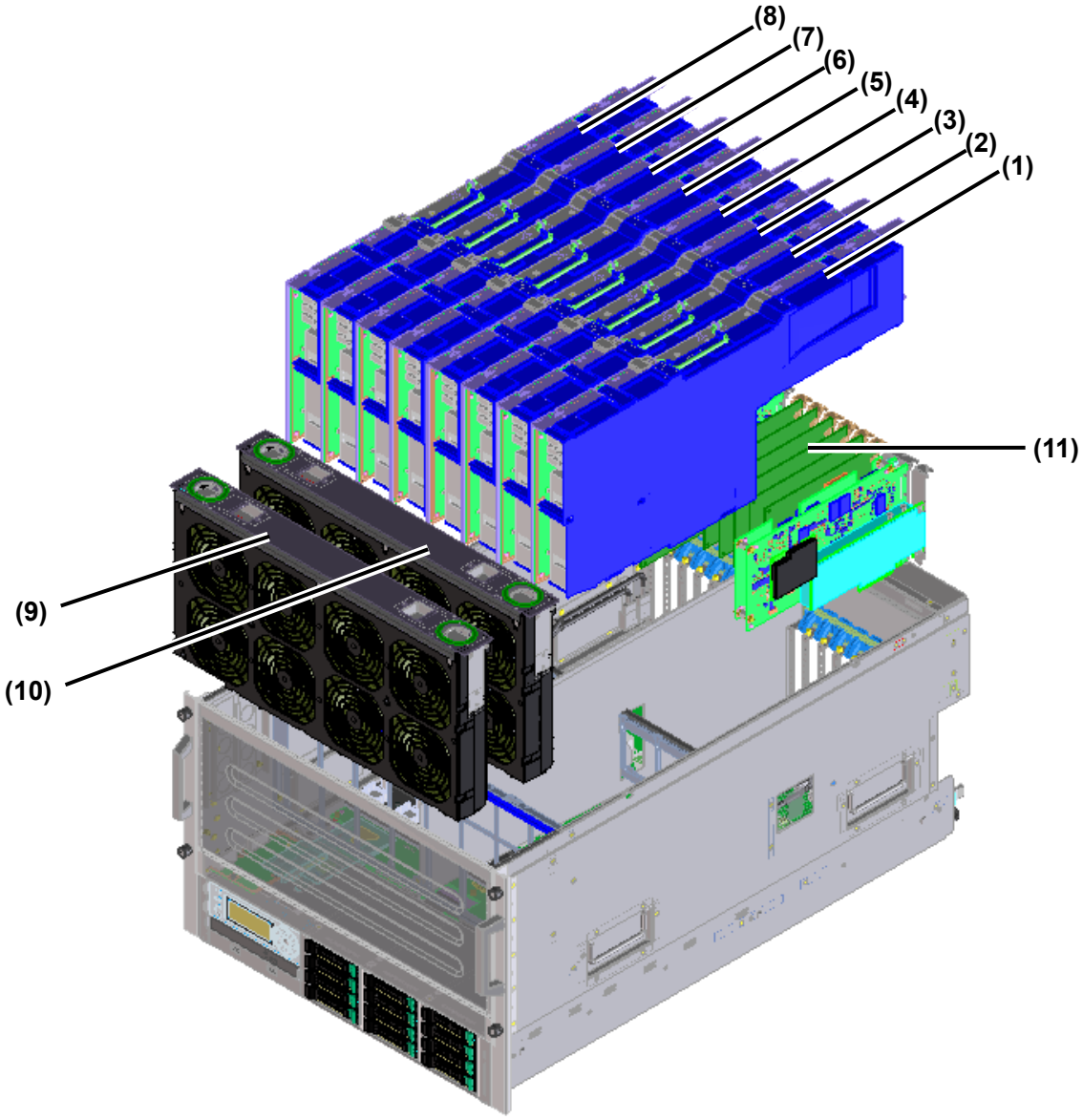
Rear View



(1) PCI slot 1 ·····SAS RAID card supported slot(*1)
(2) PCI slot 2 ·····WOL supported slot
PCI slot 3
PCI slot 4
PCI slot 5
PCI slot 6
PCI slot 7 ·····x16、Middle size card supported slot (*2)
(3) PCI slot 8 ·····WOL supported slot
PCI slot 9
PCI slot 10
PCI slot 11
PCI slot 12
PCI slot 13 ·····x16、Middle size card supported slot (*2)
(4) PCI slot 14 ·····SAS RAID card supported slot(*1)
(5) Management module 1 (6) Management module 2
(7) Power Supply Unit 1 (8) Power Supply Unit 2
(9) Power Supply Unit 3 (10) Power Supply Unit 4
(11) Power inlet 1 (12) Power inlet 2
(13) Power inlet 3 (14) Power inlet 4

(*1) SAS RAID card is available on this slot for RAID configuration using internal hard disk drives.
(*2) Middle aize cards are avairable at only this slot.

Internal View

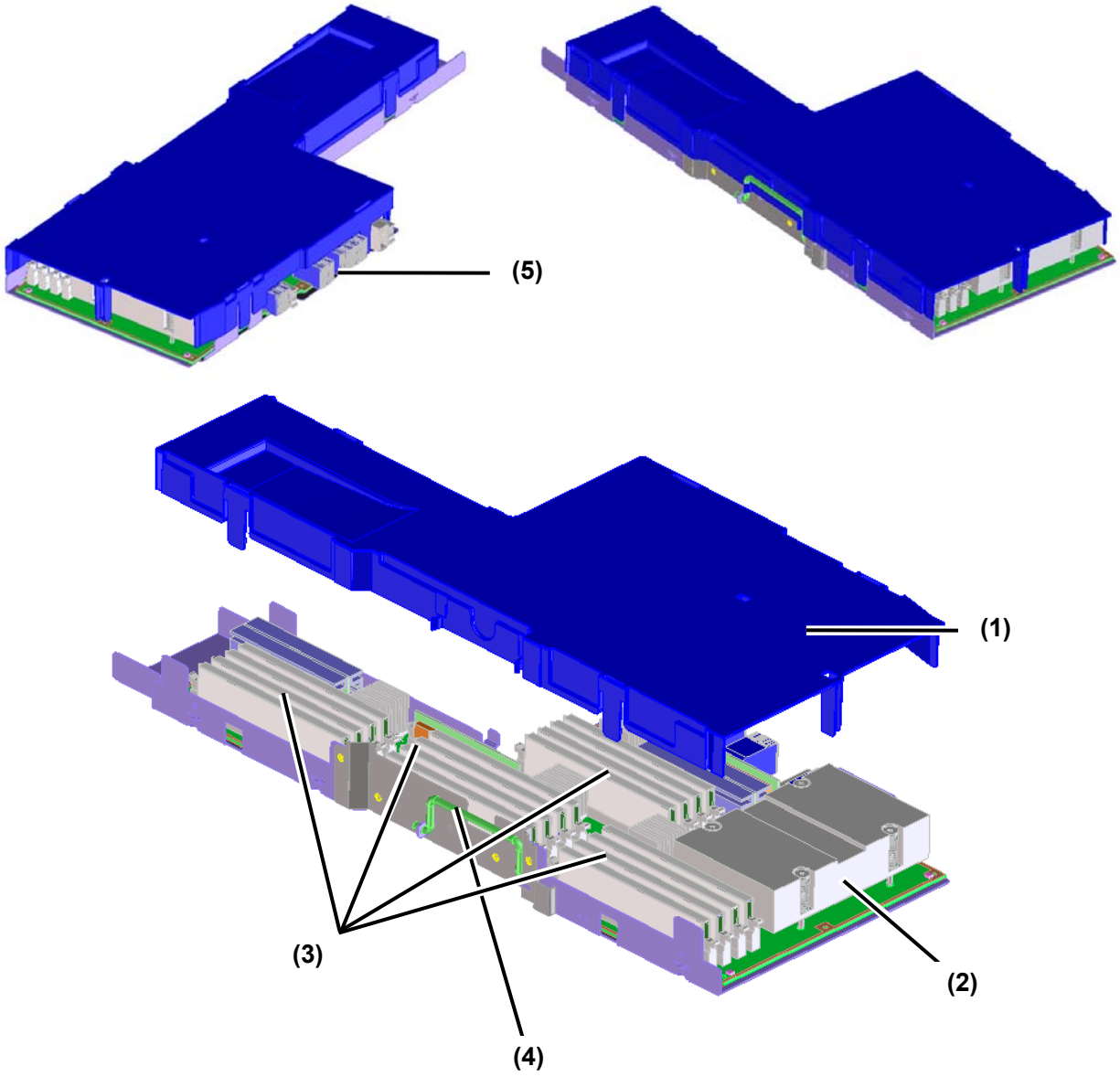


(1) Processor memory module 1
(2) Processor memory module 2
(3) Processor memory module 3
(4) Processor memory module 4
(5) Processor memory module 5
(6) Processor memory module 6
(7) Processor memory module 7
(8) Processor memory module 8
(9) Fan module 1 (First row of the front side of Server)
(10) Fan module 2 (Second row of the front side of Server)
(11) PCI cards

Processor Memory Module

Processor Memory Module has one Inter® Xone® processor and maximum 16 DIMMs.

IMPORTANT:
A processor memory module,a Processor and DIMM cannot be exchenged by the customer.



(1) Cooling duct
(2) Processor (Heat sink)
(3) DIMM (Max. 16)
(4) Handle
(5) Connecter

Processor Memory Modules Adding/Mounting Rule

The following describes how to mount processor modules when adding the modules.

Rules of Adding Processor Memory Modules

IMPORTANT:
Note that the rule of adding modules differs depending on the model such as A1080a-S, A1080a-D, and A1080a-E.

IMPORTANT:
When the Processor Memory Module is added or exchanged, it is necessary to set "Core Status" from System Web Console. Refer to Setting CoreStatus.

For A1080a-S Model

Order of Mount Slot	Processor Memory Module Number							
	#1	#2	#3	#4	#5	#6	#7	#8
First	●				-	-	-	-
Second	●	■			-	-	-	-
Third	●	♦	■		-	-	-	-
Fourth	●	♦	♦	■	-	-	-	-

●: Required
♦ : Already Mounted
■: Adding

- Processor Memory Module #1 is required.
- Add in the order of lowest to highest number, i.e., #2, #3, and #4.

For A1080a-D Model

Order of Mount Slot	Processor Memory Module Number							
	#1	#2	#3	#4	#5	#6	#7	#8
First	●				●			
Second	●	■			●			
Third	●	♦			●	■		
Fourth	●	♦	■		●	♦		
Fifth	●	♦	♦		●	♦	■	
Sixth	●	♦	♦	■	●	♦	♦	
Seventh	●	♦	♦	♦	●	♦	♦	■

● : Required
♦ : Already Mounted
■ : Adding

- Processor Memory Modules #1 and #5 are required.
- Add in the order of lowest to highest number of each server, i.e., #2, #6, #3, #7, #4, and #8.

IMPORTANT:
A1080a-D model can adopt a different configuration for each server by using the configuration change service at the time of purchase.

For A1080a-E Model

Order of Mount Slot	Processor Memory Module Number							
	#1	#2	#3	#4	#5	#6	#7	#8
First	●	●	●	●	●	●	●	●

●: Required

- Processor Memory Modules #1, #2, #3, #4, #5, #6, #7, and #8 are required.

Processor Mounting Rule

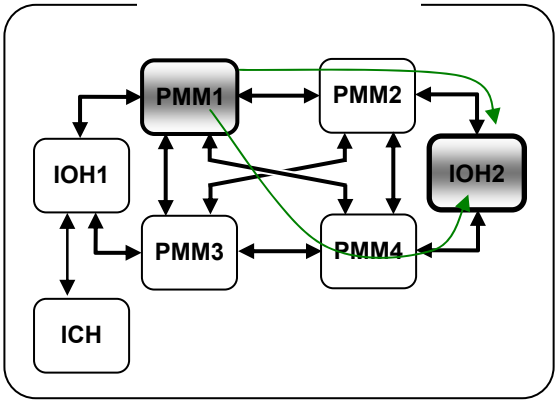
- It is required to embed processors for processor memory modules.
- It is required to that processor memory modules are mounted in a server, connected to IOH#1 or -IOH#3 having Management Module (MGM) that controls server configuration, handles failures, etc.
- With A1080a-S model, 1, 2, 3, and 4 processors can be embedded to the server 1.
- With A1080a-D model, 1, 2, 3, and 4 processors can be embedded both to the server 1 and 2.
- With A1080a-E model, 8 processors can be embedded to a server.

The following shows the connection of processor memory modules (PMMs) for **A1080a-S** model. All processor memory modules can be connected one another. Some I/O controllers (IOHs) cannot be connected to processor memory modules directly, but can be connected via other processor modules.

For A1080a-S

Used PMM	Connected PMM	Connected IOH (next connection after IOH)
PMM #1	PMM #2,PMM #3,PMM #4	IOH #1 (MGM #1/PCI #1,2,3,4)
PMM #2	PMM #1,PMM #3,PMM #4	IOH #2 (PCI #5,6,7)
PMM #3	PMM #1,PMM #2,PMM #4	IOH #1 (MGM #1/PCI #1,2,3,4)
PMM #4	PMM #1,PMM #2,PMM #3	IOH #2 (PCI #5,6,7)

Example) In the four-processor memory module configuration, PMM1 and IOH2 cannot be connected directly as shown below. However, a PCI card under IOH2 can be used via PMM2 or PMM4.
For example, the PCI card under IOH2 can be used via PMM4 even in the case of failure on PMM2.



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

The following shows the connection of processor memory modules (PMMs) for **A1080a-D** model.
All processor memory modules in the server can be connected one another. Some I/O controllers (IOHs) cannot be connected to processor memory modules directly, but can be connected via other processor modules.

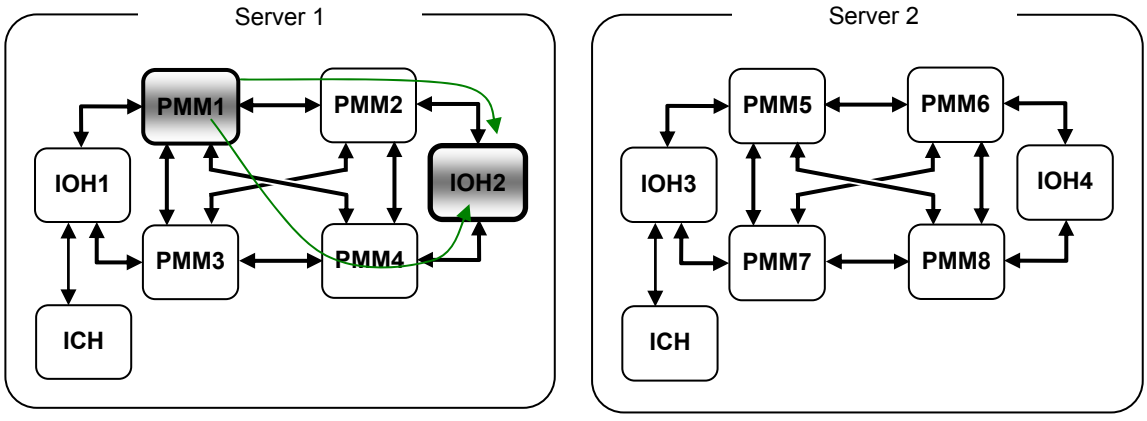
For A1080a-D Model Server 1

Used PMM	Connected PMM	Connected IOH (next connection after IOH)
PMM #1	PMM #2,PMM#3,PMM#4	IOH #1 (MGM #1/PCI #1,2,3,4)
PMM #2	PMM #1,PMM#3.PMM#4	IOH #2 (PCI #5,6,7)
PMM #3	PMM #1,PMM#2.PMM#4	IOH #1 (MGM #1/PCI #1,2,3,4)
PMM #4	PMM #1,PMM#2,PMM#3	IOH #2 (PCI #5,6,7)

For A1080a-D Model Server 2

Used PMM	Connected PMM	Connected IOH (next connection after IOH)
PMM #5	PMM #6,PMM #7,PMM #8	IOH #3 (MGM#2/PCI#14,8,9,10)
PMM #6	PMM #5,PMM #7.PMM #8	IOH #4 (PCI#11,12,13)
PMM #7	PMM #5,PMM #6.PMM #8	IOH #3 (MGM#2/PCI#14,8,9,10)
PMM #8	PMM #5,PMM #6,PMM #7	IOH #4 (PCI#11,12,13)

Example) In the four-processor memory module configuration for server 1, PMM1 and IOH2 cannot be connected directly as shown below. However, a PCI card under IOH2 can be used via PMM2 or PMM4.
For example, the PCI card under IOH2 can be used via PMM4 even in the case of failure on PMM2.
The same applies to Server 2.



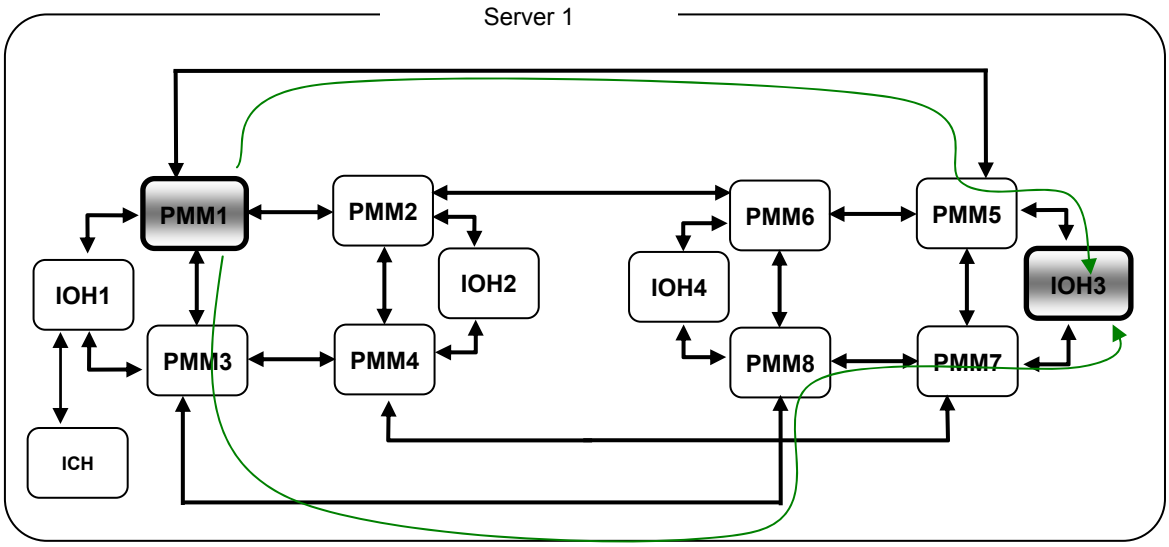
* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

The following shows the connection of processor memory modules (PMMs) for **A1080a-E** model. Some processor memory modules cannot be connected one another or some I/O controllers (IOHs) cannot be connected to processor memory modules directly, but can be connected via other processor modules.

For A1080a-E

Used PMM	Connected PMM	Connected IOH (next connection after IOH)
PMM #1	PMM #2,PMM #3,PMM #5	IOH #1 (MGM #1/PCI #1-4)
PMM #2	PMM #1,PMM #4.PMM #6	IOH #2 (PCI #5-7)
PMM #3	PMM #1,PMM #4.PMM #8	IOH #1 (MGM #1/PCI #1-4)
PMM #4	PMM #2,PMM #3,PMM #7	IOH #2 (PCI #5-7)
PMM #5	PMM #1,PMM #6,PMM #7	IOH #3 (MGM #2/PCI #14,8-10)
PMM #6	PMM #2,PMM #5,PMM #8	IOH #4 (PCI #11-13)
PMM #7	PMM #4,PMM #5,PMM #8	IOH #3 (MGM #2/PCI #14,8-10)
PMM #8	PMM #3,PMM #6,PMM #7	IOH #4 (PCI #11-13)

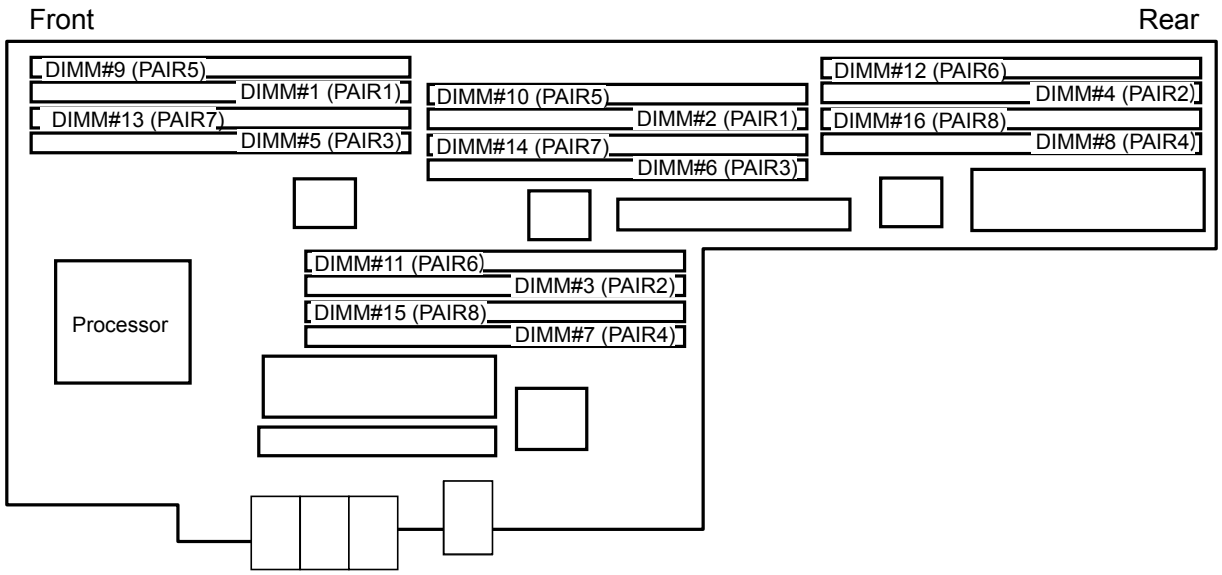
Example) In the eight-processor memory module configuration, PMM1 and IOH3 cannot be connected directly as shown below. However, a PCI card under IOH3 can be used via PMM5 or PMM3,PMM8 and PMM7.
For example, the PCI card under IOH3 can be used via PMM3,PMM8 and PMM7 even in the case of failure on either PMM5.



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

DIMM Adding/Mounting Rule

The following shows DIMM slot numbers to be mounted on the processor memory module.
The following is an image showing DIMM slot numbers.



DIMM Adding Rule

Note that the addition unit of DIMMs differs depending on the model for **A1080a-S**, **A1080a-D** or **A1080a-E** when adding DIMMs or changing configuration,.

- **A1080a-S/A1080a-D** Model **: Add per 2 DIMMs**
- **A1080a-E** Model **: Add per 4 DIMMs**

Minimum/Maximum Memory Configuration

- **A1080a-S** Model **: 4GB(2GB x2) - 1TB(16GB x64)** Server 1
- **A1080a-D** Model **: 4GB(2GB x2) - 1TB(16GB x64)** Same for both Server 1 and Server 2.
- **A1080a-E** Model **: 8GB(2GB x4) - 2TB(16GB x128)** Server 1

Refer to the mounting rule described on the next page for DIMM mounting order.

DIMM Mounting Rule in the System

- Mount a larger DIMM preferentially on the slot with a lower number.
- Mount on sets (pair of DIMMs for **A1080a-S/A1080a-D** and set of 4 DIMMs for **A1080a-E**) in the order of mounting the processor memory modules when mounting multiple memories.

NOTE:
(Example) For mounting 4-processor memory module of A1080a-S model,
the first 2 DIMMS are mounted to processor memory module 1,
the next 2 DIMMS are mounted to processor memory module 2,
the third 2 DIMMS are mounted to processor memory module 3,
the forth 2 DIMMS are mounted to processor memory module 4, and
the fifth 2 DIMMS are mounted to processor memory module 1…etc.

DIMM Mounting Rule in Processor Memory Module

Follow the table below to mount DIMMs to the processor memory module.

The order of mounting DIMMs the processor memory module.

• For A1080a-S/A1080a-D Model (Set of 2 DIMMs as a pair)

	DIMM	PAIR
First Mount SLOT	DIMM #1,#2	PAIR #1
Second Mount SLOT	DIMM #3,#4	PAIR #2
Third Mount SLOT	DIMM #5,#6	PAIR #3
Fourth Mount SLOT	DIMM #7,#8	PAIR #4
Fifth Mount SLOT	DIMM #9,#10	PAIR #5
Sixth Mount SLOT	DIMM #11,#12	PAIR #6
Seventh Mount SLOT	DIMM #13,#14	PAIR #7
Eighth Mount SLOT	DIMM #15,#16	PAIR #8

• For A1080a-E Model (Set of 4 DIMMs as a pair)

	DIMM	PAIR
First Mount SLOT	DIMM #1,#2,#3,#4	PAIR#1,#2
Second Mount SLOT	DIMM #5,#6,#7,#8	PAIR#3,#4
Third Mount SLOT	DIMM #9,#10,#11,#12	PAIR#5,#6
Fourth Mount SLOT	DIMM #13,#14,#15,#16	PAIR#7,#8

DIMM Mounting Rule

A1080a-S/A1080a-D Model

- A pair of DIMMs is defined as “PAIR” in this Guide, which is connected from the same channel (Ch.x) number in two memory buffers connected to the same memory controller.

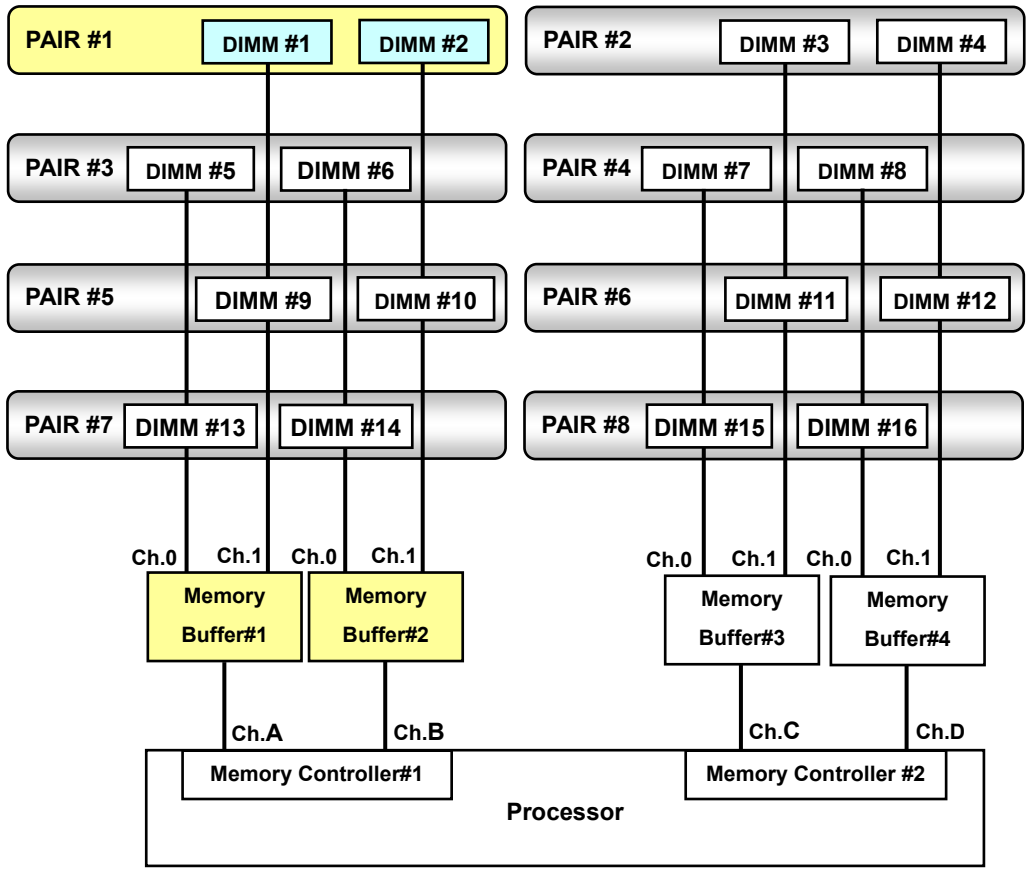
  Example) DIMM #1 and DIMM #2 are regarded as PAIR #1, which are connected from Ch.1 of the memory buffer #1 and Ch.1 of the memory buffer #2 in the following memory configuration diagram.

- The exact same type of DIMMs (Column/Row/Bank/Rank configuration) must be mounted on the same PAIR.

- In the **A1080a-S**/**A1080a-D** model configuration, “PAIR” indicating pairs of DIMM is the basic unit of DIMM control. DIMMs are added or reduced by using this PAIR unit.

- Add in pairs starting from PAIR #1 in the order of lowest to highest number as a rule when adding DIMMs.

Memory Configuration Diagram



A1080a-E Model

- A set of 4 DIMMs (set of two “PAIR”s) is defined as QUARTET in this Guide, which is in the same position viewed from two memory controllers on the same processor.

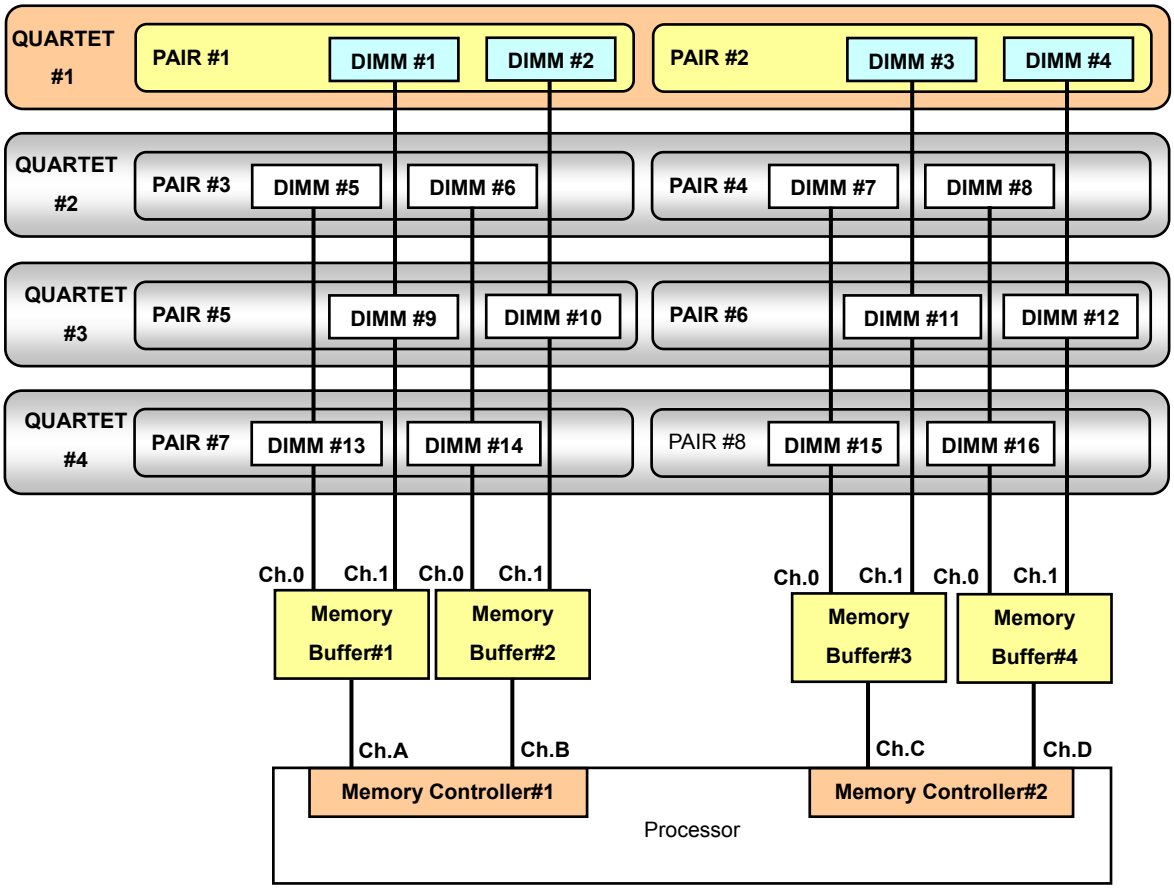
  Example) In the following memory configuration diagram,
  QUALTET #1 consists of PAIR #1 to which DIMM #1 belongs and the DIMM #1 is connected to Ch.A of memory controller #1 and connected to Ch.1 of the memory buffer #1 and of PAIR#2 to which DIMM #3 belongs and the DIMM #3 is connected to Ch.C of memory controller #2 and connected to Ch.1 of memory buffer #3.

- In the configuration in which more than four processor memory modules are mounted, the exact same type of DIMMs (Column/Row/Bank/Rank configuration) must be mounted to the same QUARTE.

- In the configuration in which more than four processor memory modules are mounted, DIMMs must be added or reduced by the QUARTET unit.

- Add in sets of 4 starting from QUALTET #1 in the order of lowest to highest number as a rule when adding DIMMs.

Memory Configuration Diagram



Memory RAS Functions

The server supports the following functions as RAS functions.
There are some restrictions for the mounted memory when using each function. Refer to each section for details.

- **Memory Mirroring Function**
- **DIMM Sparing Function**
- **Memory Scrubbing Function**

NOTE:
RAS is the abbreviation of Reliability, Availability, and Serviceability. It is the concept of technological background to improve reliability of systems. RAS consists of the initial letters of these three basic technological concepts.
Reliability signifies to prevent a failure of hardware or software. Mean time between failure, "MTBF," is used as an indicator. Availability is the term for improvement of the system availability and the importance of this term is how to recover from failure as quickly as possible.

Memory Mirroring

The Memory Mirroring function provides high fault tolerance similar to the memory RAID function. Memory Mirroring is one of the RAS functions. This function prepares memory for mirroring that has the same capacity (or more) for the memory whose contents are to be protected and constantly duplicates (mirrors) the whole contents of the memory in the mirroring memory. In case memory failure occurs, it can protect the contents stored in the memory by switching to the mirroring memory.

Set Memory Mirroring from "Memory Mirroring" in Web Console.

IMPORTANT:
- **Memory Mirroring and DIMM Sparing cannot be set simultaneously.**

There are two types of Memory Mirroring as below.

(1) Mirroring in the processor memory module

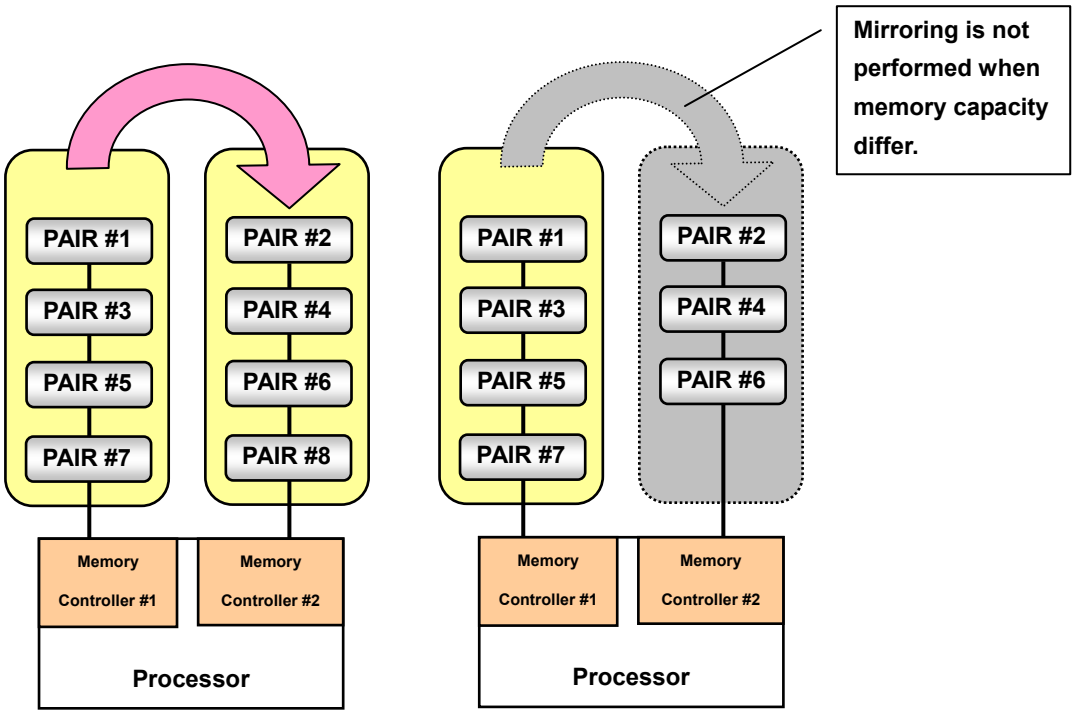
(2) Mirroring between processor memory modules

Each type is described in the next pages.

(1) Mirroring in the processor memory module

A1080a-S/A1080a-D models support mirroring in the processor memory module.

Mirroring is performed between memory controllers (memory controller#1 and memory controller #2) in the same processor as shown below. A memory controller with a lower number (memory controller#1) is mirrored in principle.



Mirroring in the processor memory module

Restrictions of using mirroring in the processor memory module

A1080a-S/A1080a-D Model:

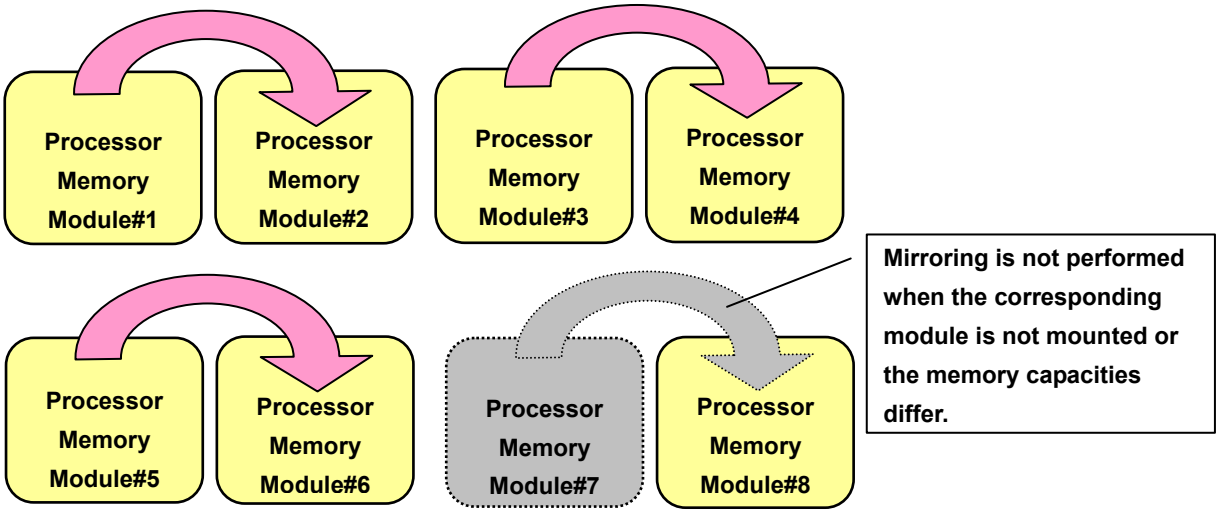
- The memory capacity of memory buffer#1 and #2 and of memory buffer#3 and #4 to be mirrored must be the same.

(2) Mirroring between processor memory modules

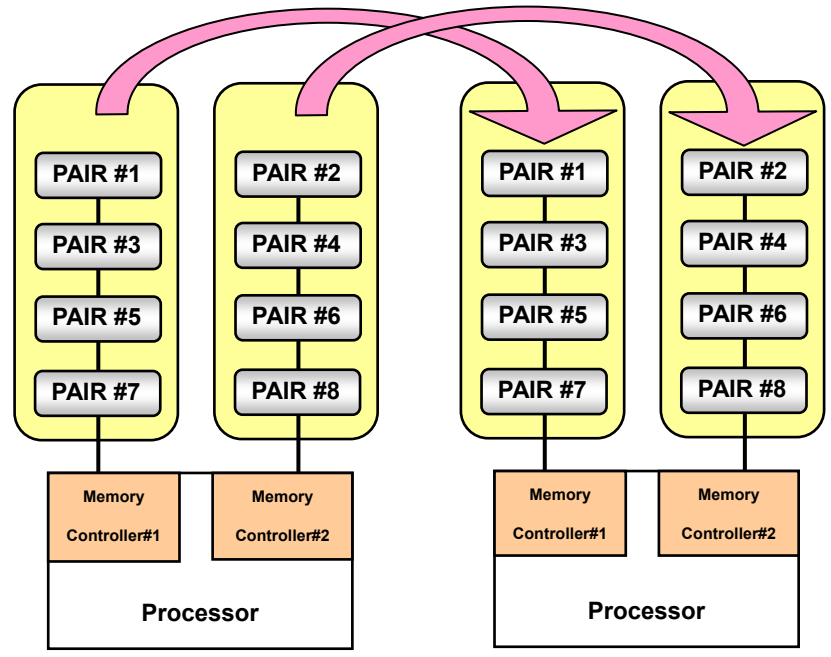
Mirroring should be performed between the adjacent processor memory modules as shown below.

A1080a-S Model: Processor Memory Modules #1 and #2; #3 and #4
A1080a-D Model: Processor Memory Modules #1 and #2; #3 and #4
Processor Memory Modules #5 and #6; #7 and #8
A1080a-E Model: Processor Memory Modules #1 and #2; #3 and #4; #5 and #6; #7 and #8

A processor memory module with a lower number is mirrored in principle.
Mirroring is not performed regardless of the settings when the adjacent processor memory module does not exist or the memory capacity differs.



Mirroring between processor memory modules



Processor memory module #1 **Processor memory module #2**

Restrictions for each model in using mirroring between processor memory modules

* The same restrictions are applied to the **A1080a-S/A1080a-D /A1080a-E**.

- The memory capacity of each processor memory module that performs mirroring must be the same.

The following shows the supported memory mirroring configuration.

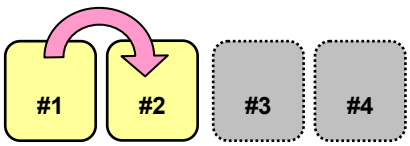
A1080a-S/A1080a-D Model:

Mirroring in the processor memory module : supported

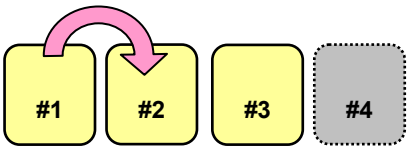
Mirroring between processor memory modules: the following three configurations are supported.

NOTE:
Replace the following processor memory modules #1/#2/#3/#4 with processor memory modules #5/#6/#7/#8 for Server 2 of RA1080a-D model.

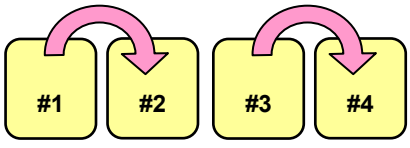
(1) In the two-processor memory module configuration of processor memory modules #1 and #2, mirroring of #1 and #2 is performed.



(2) In the three-processor memory module configuration of processor memory modules #1, #2, and #3, mirroring of #1 and #2 is performed and #3 is not performed.



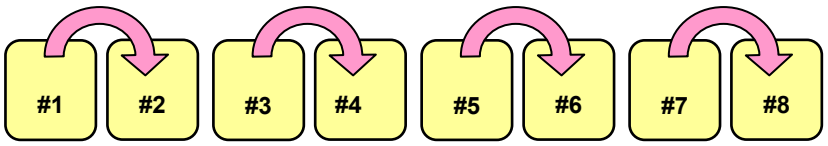
(3) In the four-processor memory module configuration of processor memory modules #1, #2, #3, and #4, mirroring of #1 and #2, and #3 and #4 are performed respectively.



A1080a-E Model:

Mirroring in the processor memory module: Not supported
Mirroring between processor memory modules: One of the following configurations is supported.

(1) Processor Memory Modules #1 and #2, #3 and #4, #5 and #6, and #7 and #8



IMPORTANT:
The size of a memory capacity displayed in OS is the one that deducts a stand-by memory capacity from the capacity of all physically mounted memories when using the memory mirroring function (the size is half-capacity of the actual memory when

DIMM Sparing

DIMM sparing is one of the RAS functions. This function constantly duplicates the contents of DIMM having a possibility of failure in a spare DIMM that is prepared separately. In case DIMM failure occurs, it can protect the contents of DIMM by switching to the spare DIMM immediately.

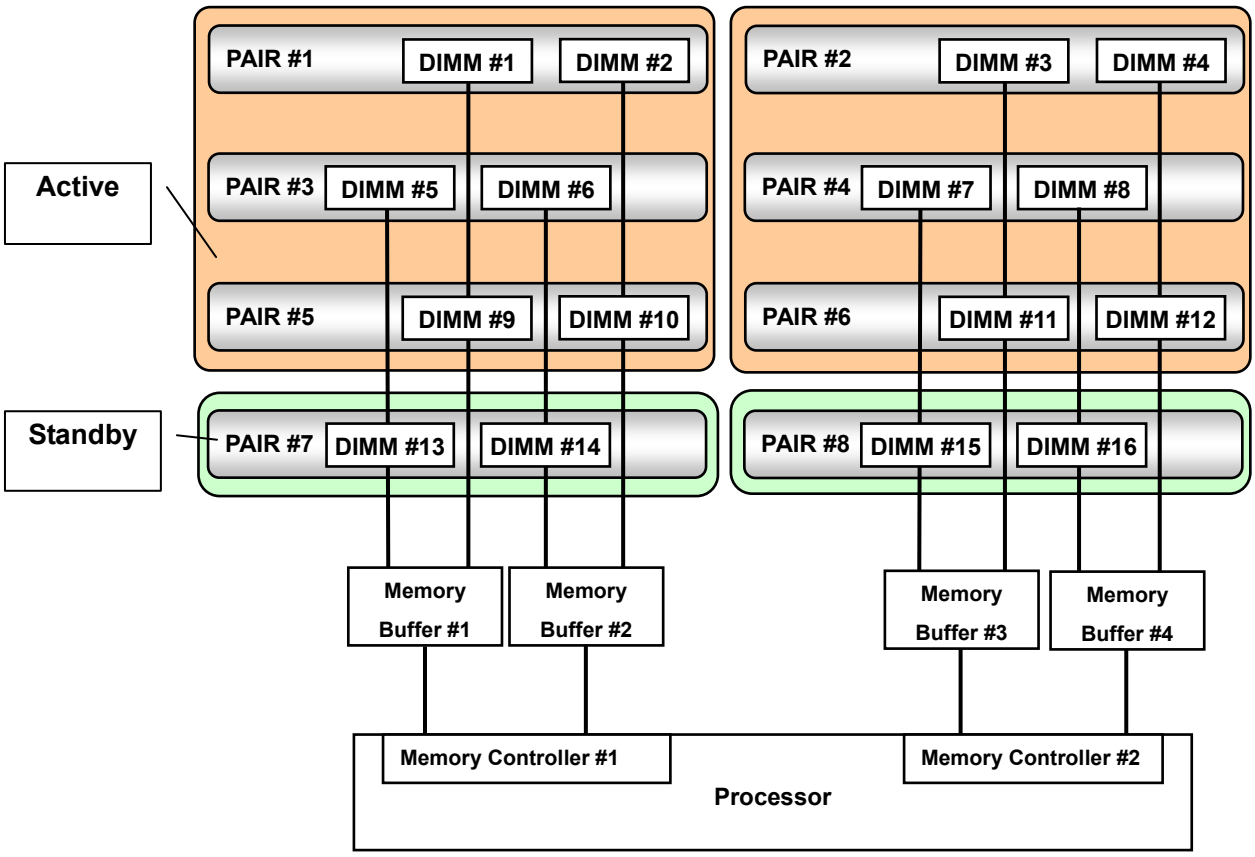
Set DIMM sparing from “Memory Sparing” in Web Console.

IMPORTANT:
- **DIMM sparing and memory mirroring cannot be set simultaneously.**

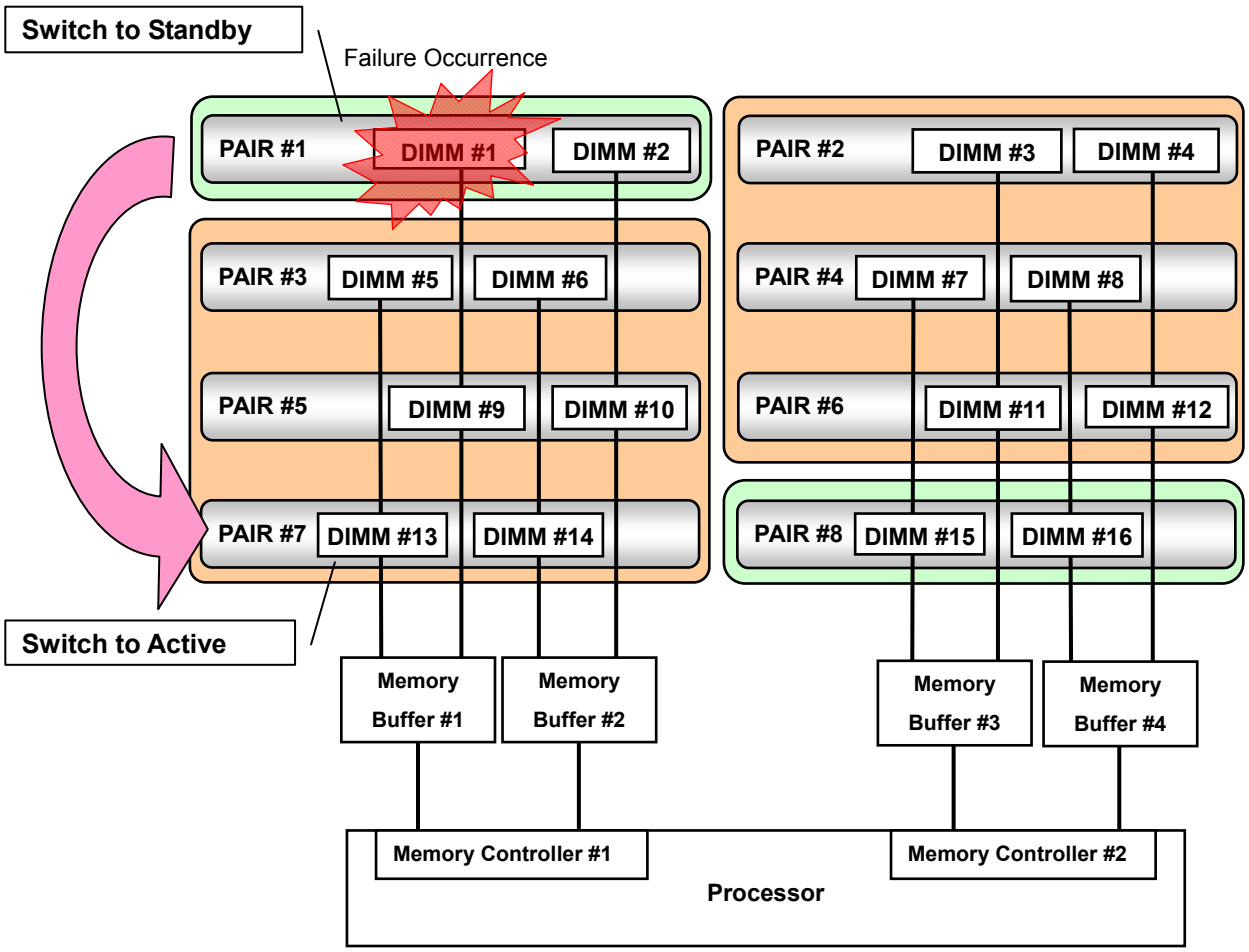
Memory restrictions in using the DIMM sparing function.

A1080a-S/A1080a-D Model

- The types and capacities of all DIMMs in PAIRs under memory buffers #1 and #2 must be the same.
  The types and capacities of all DIMMs in PAIRs under memory buffers #3 and #4 must be the same.



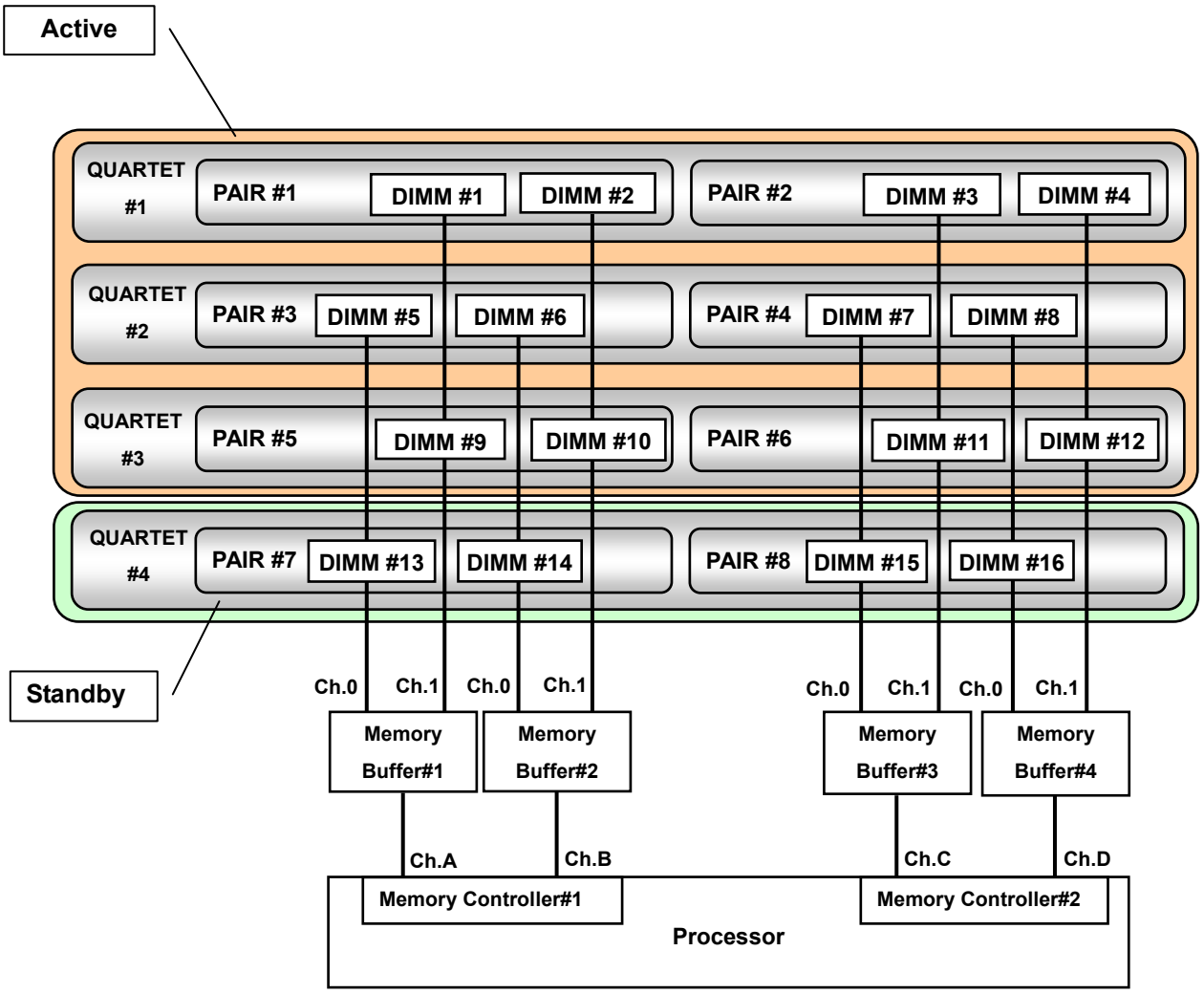
At DIMM sparing failure occurrence



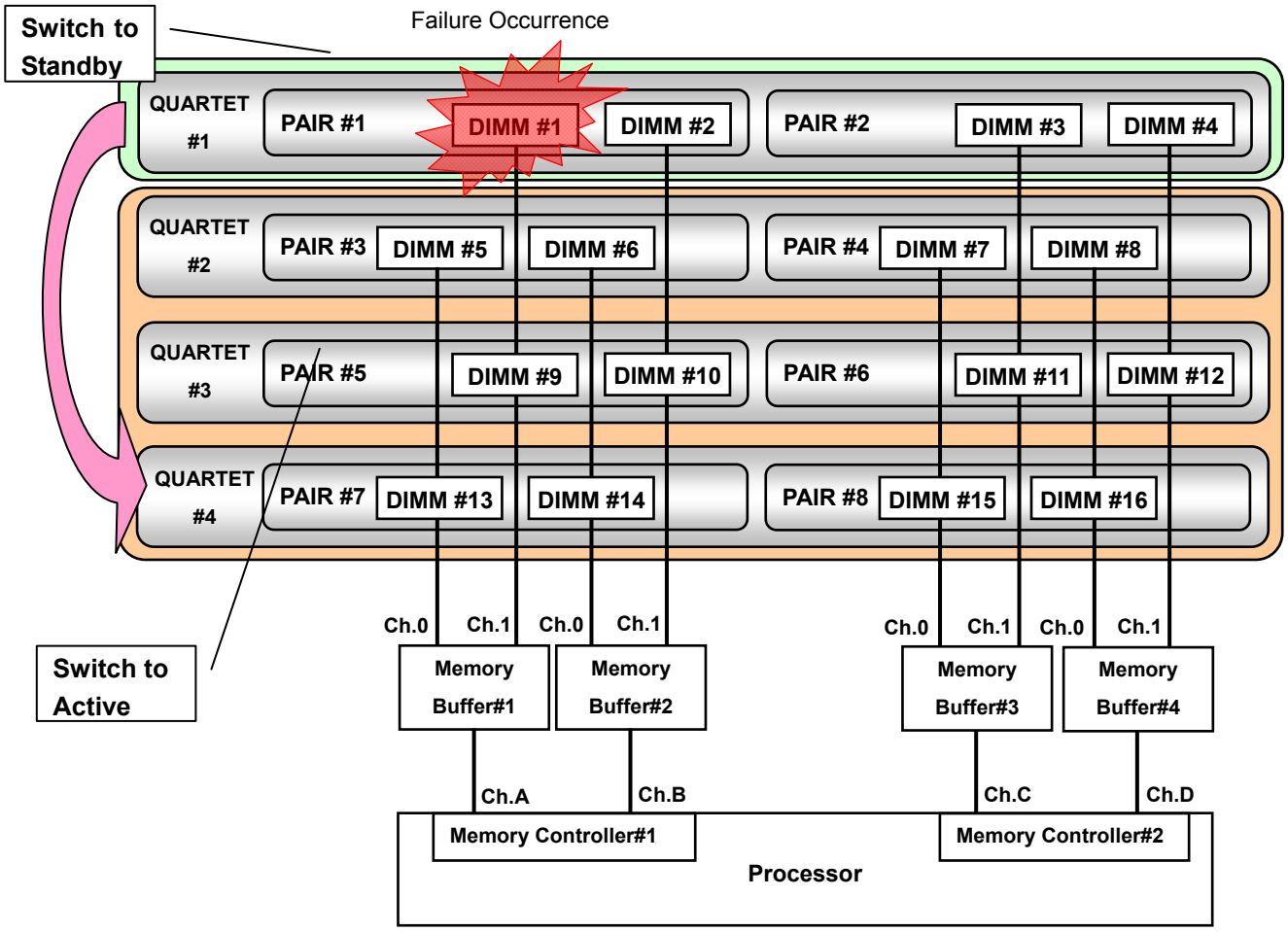
At DIMM sparing failure occurrence

A1080a-E Model

- The types and capacities of all DIMMs in PAIRs that are connected to memory buffers must be the same.



At DIMM sparing failure occurrence



At DIMM sparing failure occurrence

Memory Scrubbing

This function provides the patrol scrubbing and demand scrubbing functions. It can search in the system memory preliminarily to detect a single-bit error automatically and correct correctable errors, and can reduce the possibility of a multi-bit error occurrence in the same memory by setting to never use the memory location permanently as an unreadable area.

Other Memory Functions

The server memory has the interleaving function in addition to the above RAS functions.

Memory Interleave

The memory interleaving function is one of technologies that speed up data transfer of memory, and is an approach to speed up by reading and writing from/into multiple memory banks simultaneously.

The server can always perform memory interleaving in each memory controller. In addition, it can perform among multiple memory controllers or among multiple processors.
Set Memory Interleave from “Memory Interleave” in Web Console when using memory interleaving among multiple memory controllers or among multiple processors.

Settings	In each memory Controller	Among multiple memory Controllers	Among multiple Processors
Disable	Interleaving	NOT Interleaving	NOT Interleaving
Intra	Interleaving	Interleaving	NOT Interleaving
Inter(4way)	Interleaving	Interleaving	Interleaving(max 4ways)
Inte(Max)	Interleaving	Interleaving	Interleaving(full ways)

Refer to “2.5.5 Mode Settings” of “Server Web Console” section for details on the settings.

When using memory interleaving among multiple processors, the memory accesses to the consecutive area may become faster because multiple processors can access to those areas parallelly. However, the performance does not simply improve in proportion to the number of processors due to the controller overhead and discontinuous access to the address.
If there are many memory accesses via different processor, the performance may become lower.

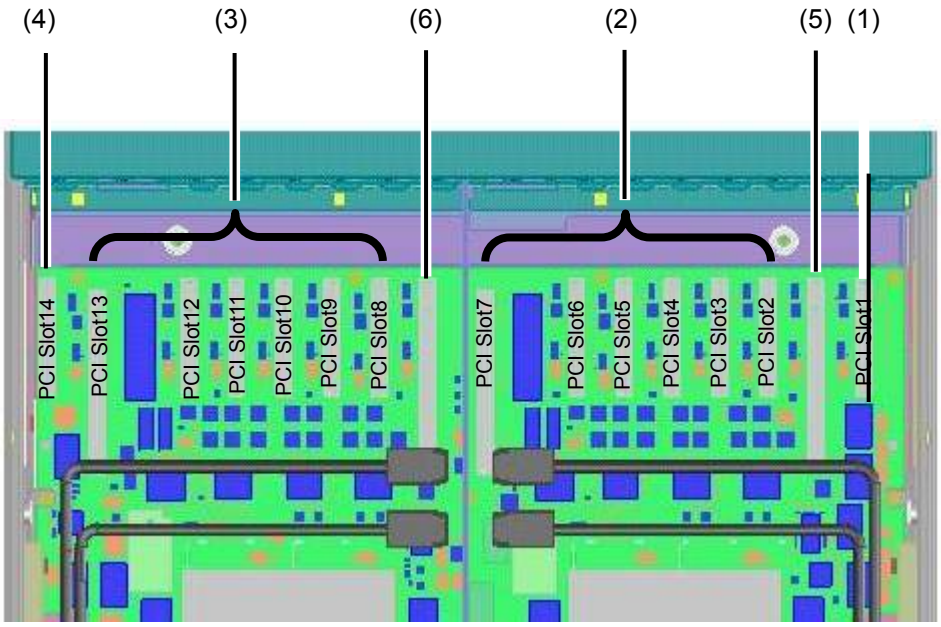
When using the memory interleaving among multiple processors, the performance may become lower if the NUMA,Non Uniform Memory Access, is set to “enable” on BIOS setup. So, it is recommended that NUMA is set to “disable” on BIOS when using the memory interleaving among multiple processors. Refer to the “Chipset” of “BIOS Setup” section for details on NUMA.

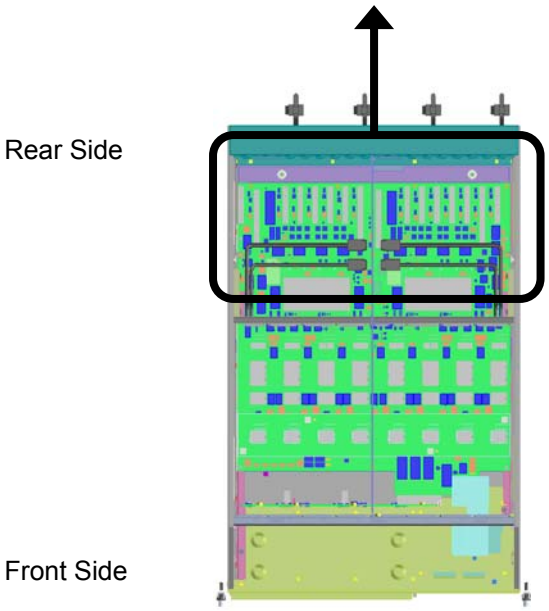
Restrictions for each model

- In **A1080a-S/A1080a-D**, it is recommended that memory capacity between memory controllers that interleaves are the same.

PCI Card

The following image shows slots of the PCI card to be mounted.





Top view of the server
The top cover and processor memory modules are removed.

PCI Card Mounting Rule

(1) PCI slot 1 ····· RAID supported slot *1
(2) From rear left
PCI slot 2 ····· WOL supported slot *2
PCI slot 3
PCI slot 4
PCI slot 5
PCI slot 6
PCI slot 7 ····· x16, Middle size supported slot *3
(3) From rear left
PCI slot 8 ·····WOL supported slot *2
PCI slot 9
PCI slot 10
PCI slot 11
PCI slot 12
PCI slot 13 ····· x16、Middle size supported slot *3
(4)·· PCI slot 14 RAID supported slot *1
(5) Management Module 1
(6) Management Module 2

	Supported Functions	Supported PCI Slots
***1**	SAS RAID Card Supported	PCI slot 1 PCI slot 14
***2**	Wake On Lan (WOL) Supported	PCI slot 2 PCI slot 8
***3**	Middle size and PCIe x16 Supported	PCI slot 7 PCI slot 13

IMPORTANT:
- **Other PCI cards can also be mounted to the slot when the functions in the above table are not used.**

PCI has the limitations for mounting slots depending on the processor memory module configuration. Note that there are also limitations according to WOL target slots, card sizes, and supported standards.

The following processor memory modules must be mounted for using PCI slots.

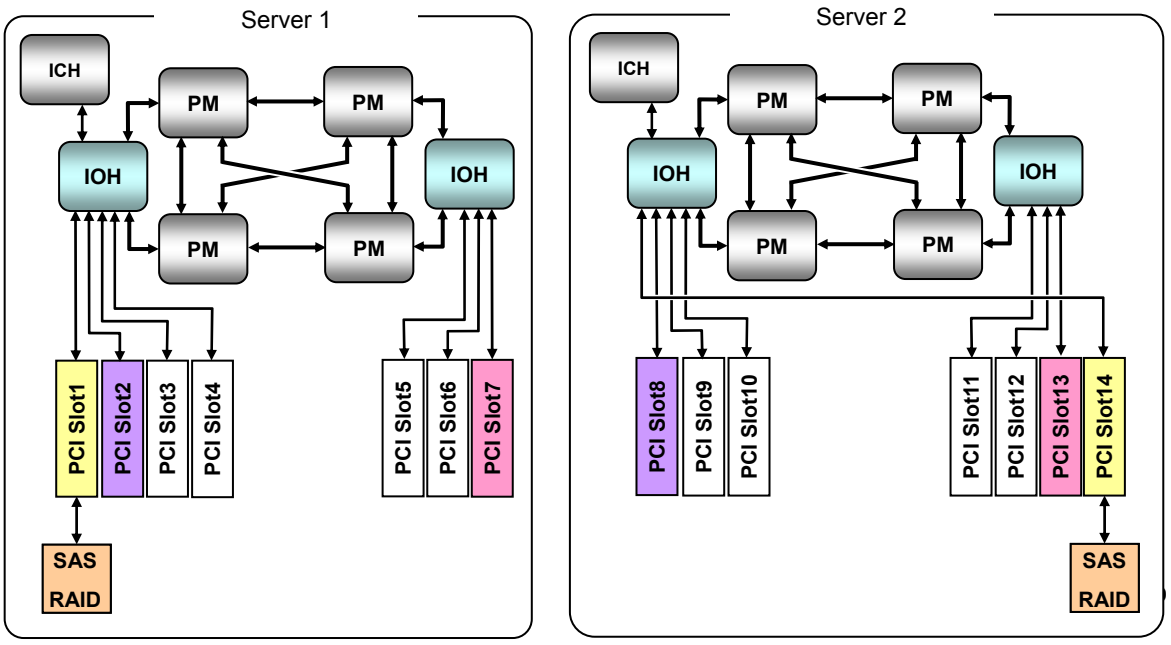
For A1080a-S Model

Used PCI Slots	Processor Memory Modules Connected to PCI Slots
PCI 1, 2, 3, 4	Processor memory module 1 or 3
PCI 5, 6, 7	Processor memory module 2 or 4

For A1080a-D Model

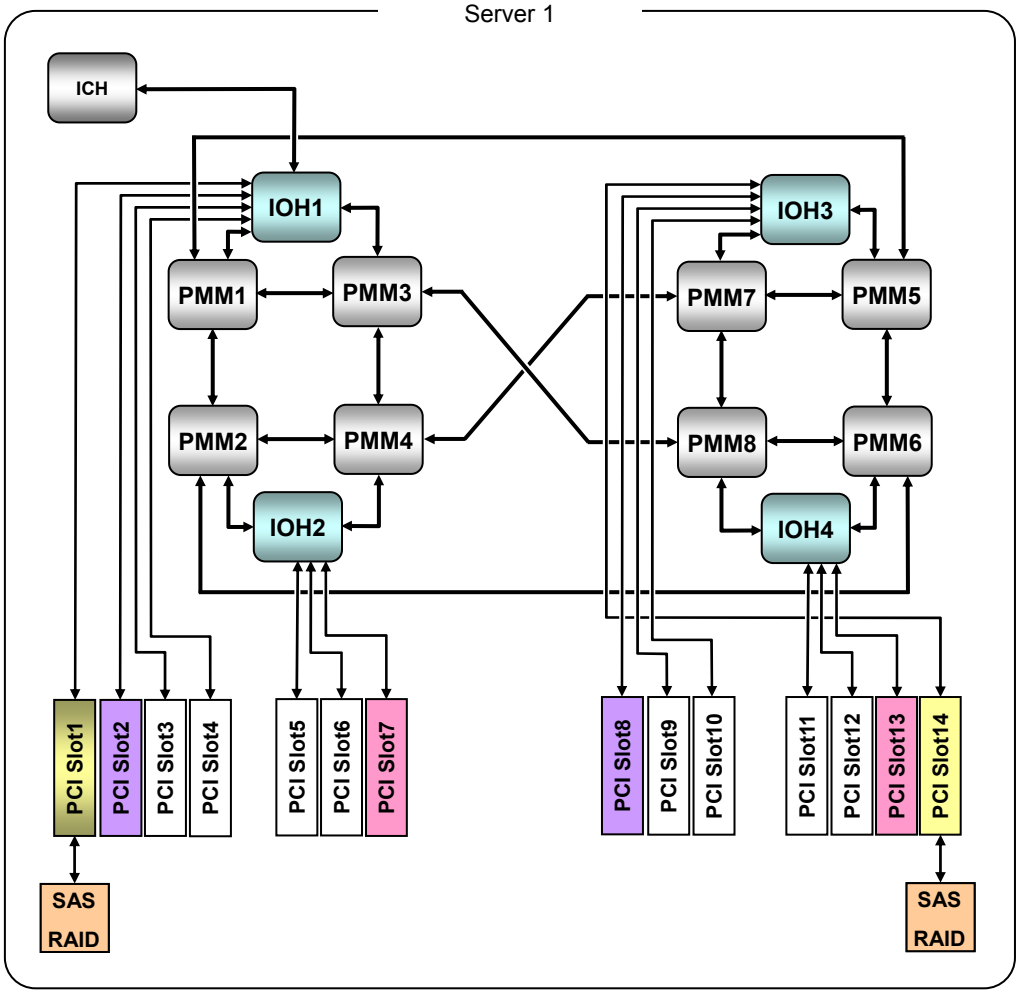
Used PCI Slots	Processor Memory Modules Connected to PCI Slots
PCI 1, 2, 3, 4	Processor memory module 1 or 3
PCI 5, 6, 7	Processor memory module 2 or 4
PCI 8, 9, 10, 14	Processor memory module 5 or 7
PCI 11, 12, 13	Processor memory module 6 or 8

Connection Diagram of A1080a-S/A1080a-D Model



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

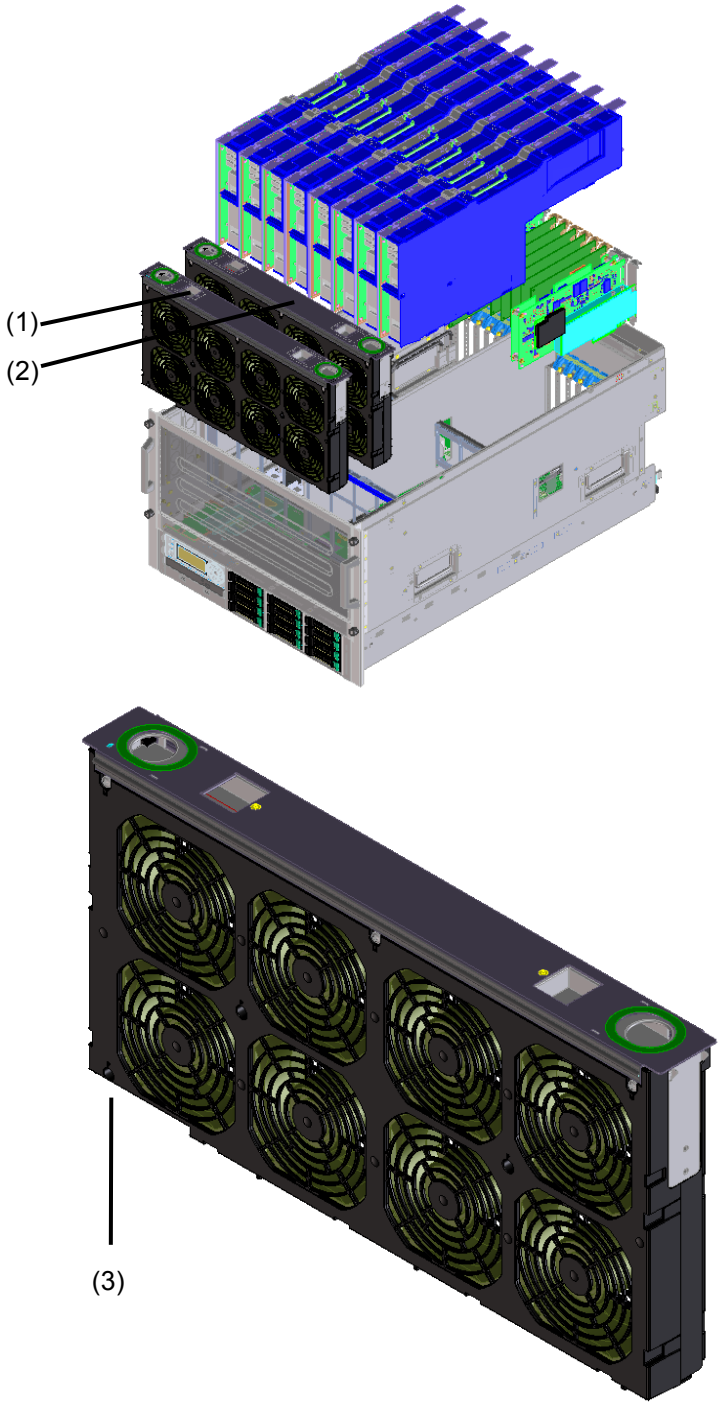
Connection diagram of A1080a-E model



* PMMx is an abbreviation of a processor memory module.
* IOHx is an abbreviation of an I/O hub.
* ICH is an abbreviation of an I/O control hub.

Cooling Fans

There are two mounted cooling fans: the first on the front side of the server is a cooling fan (1) and the second is a cooling fan (2).



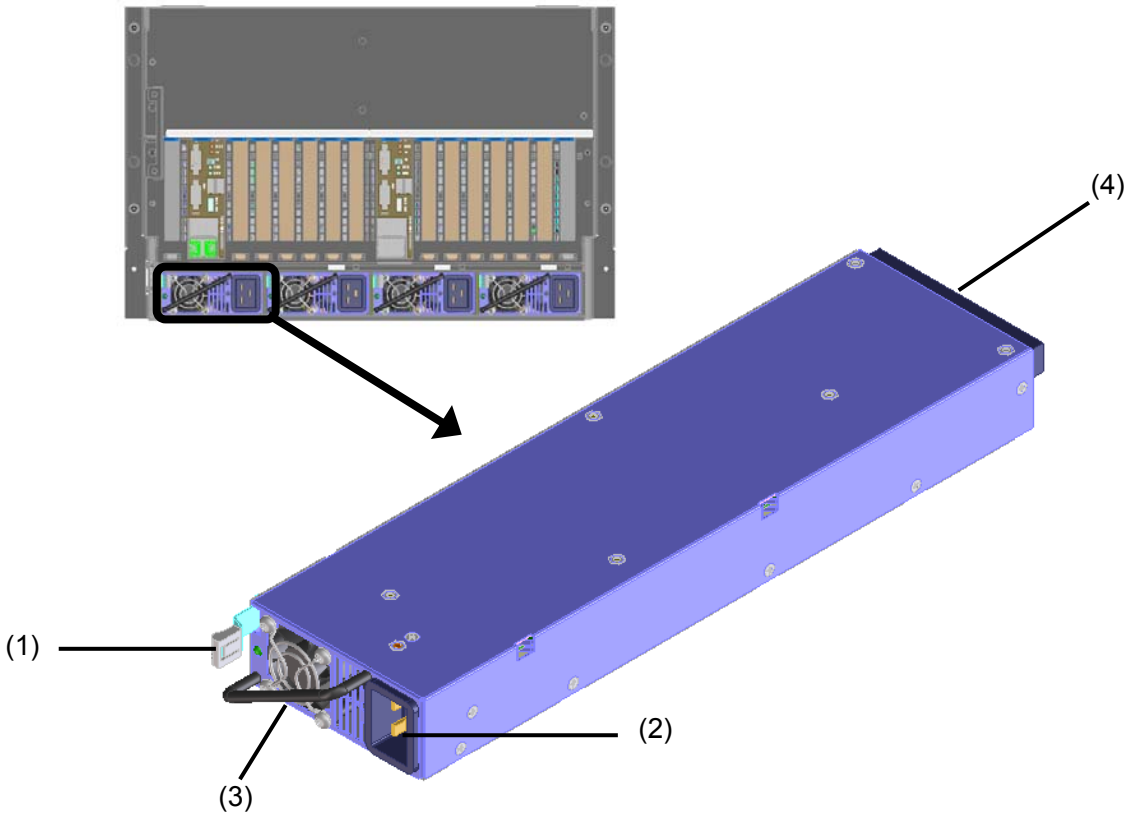
(1) Cooling Fan 1 (First row of the front side of Server)
(2) Cooling Fan 2 (Second row of the front side of Server)
(3) Connector

Power Supply Unit

In the server, there are 4 slots where a power supply unit is to be mounted. The redundant configuration can be achieved by the number of mounted units.

- No Redundancy : Four power supply units are configurable. Two power supply units are configured by default.
  When A1080a-S model, the system is able to operate with a power supply unit connected to a power supply outage. However it is not true when A1080a-D model or A1080a-E model.
- N+1 Redundancy: Operation can be continued even when one of power supply units fails.
  For example, if the minimum requisite power supply units are two and one more unit is added, this enables continuous operation by using the available two units even when one of three units fails.
- 2N Redundancy: Operation can be continued by supplying power to two power supply units from two electric power companies respectively even in the case of power supply outage from one of the electric power companies.

Rear of Server



(1) Release Lock Lever
(2) AC Inlet
(3) Handle
(4) Connector

Below shows the samples of redundant configuration.

1) N+1 redundant configuration

	N+1 Redundant	Power Supply 1		Power Supply 2		Note
		PSU1	PSU2	PSU3	PSU4	
N=1	2 PSUs	Used		Used		*1
N=2	3 PSUs	Used	Used	Used		*2
N=3	4 PSUs	Used	Used	Used	Used	*3

PSU: Power Supply Unit

*1 : Operation can be continued even if PSU1 fails or Power Supply1 has outage.
Operation can be continued even if PSU3 fails or Power Supply2 has outage.

*2 : Operation can be continued even if PSU1 fails, PSU2 fails,PSU3 fails or Power Supply2 has outage.

*3 : Operation can be continued even if PSU1 fails, PSU2 fails,PSU3 fails or PSU4 fails.

2) 2N redundant configuration

	2N Redundant	Power Supply 1		Power Supply 2		Note
		PSU1	PSU2	PSU3	PSU4	
N=1	2 PSUs	Used		Used		*4
N=2	4 PSUs	Used	Used	Used	Used	*5

*4: Operation can be continued even if PSU1 fails or Power Supply1 has outage.
Operation can be continued even if PSU3 fails or Power Supply2 has outage.

*5 : Operation can be continued even if PSU1 fails,PSU2 fails or Power Supply1 has outage.
Operation can be continued even if PSU3 fails,PSU4 fails or Power Supply2 has outage.

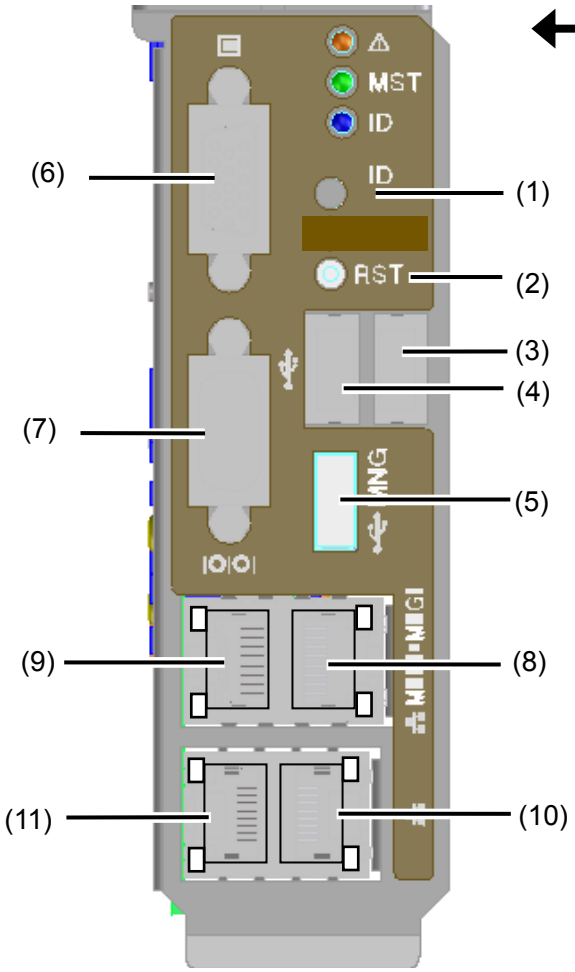
Management Module

The following image shows connectors mounted on the management board.

Each connector is the same when two management modules are mounted. Refer to “LED Description” for details on LEDs.

Rear of Server





(1) ID Button
(2) Reset Button
(3) USB Port
(4) USB Port
(5) USB Port (for maintenance)
(6) Monitor Connector (VGA)
(7) Serial Connector (RS-232C D-sub 9pin)
(8) LAN Connector *1
10BaseT/100BaseTX/1000BaseT
(9) LAN Connector *2
10BaseT/100BaseTX
(10) LAN Connector
10BaseT/100BaseTX/1000BaseT
(11) LAN Connector
10BaseT/100BaseTX/1000BaseT

*1 (8) : Management LAN for customers
*2 (9) : Maintenance LAN for maintenance service

Refer to the next page for the description.

IMPORTANT:
Note that (5) the USB for maintenance and (9) the maintenance LAN are for maintenance service personnel and cannot be used by customers.

Refer to “Connection” for how and where each connector is connected.

NOTE:
(2) Shutdown Button
(3) Management Module Reset Button
The above two buttons can be pressed by a sharp-pointed object.

(1) ID Button

A button to light the ID LED. Pressing the button lights and pressing again turns the LED off (it functions similarly to the ID button of EXPRESSSCOPE® Monitor in front side of the server).

(2) Reset Button

This button is used for resetting the management module.

(3) USB Port
(4) USB Port

This connects to a device that supports the USB 2.0 (Hi-speed) interface.

(5) USB Port (for maintenance)

USB connector for maintenance. This is not commonly used.

(6) Monitor Connector (VGA)

This connects display devices.

(7) Serial Connector (RS-232C D-sub 9pin)

This connects to a device that has a serial interface.

(8) 10BaseT/100BaseTX/1000BaseT LAN Connector

(LAN management for customers)
This is used for connecting Web Console.

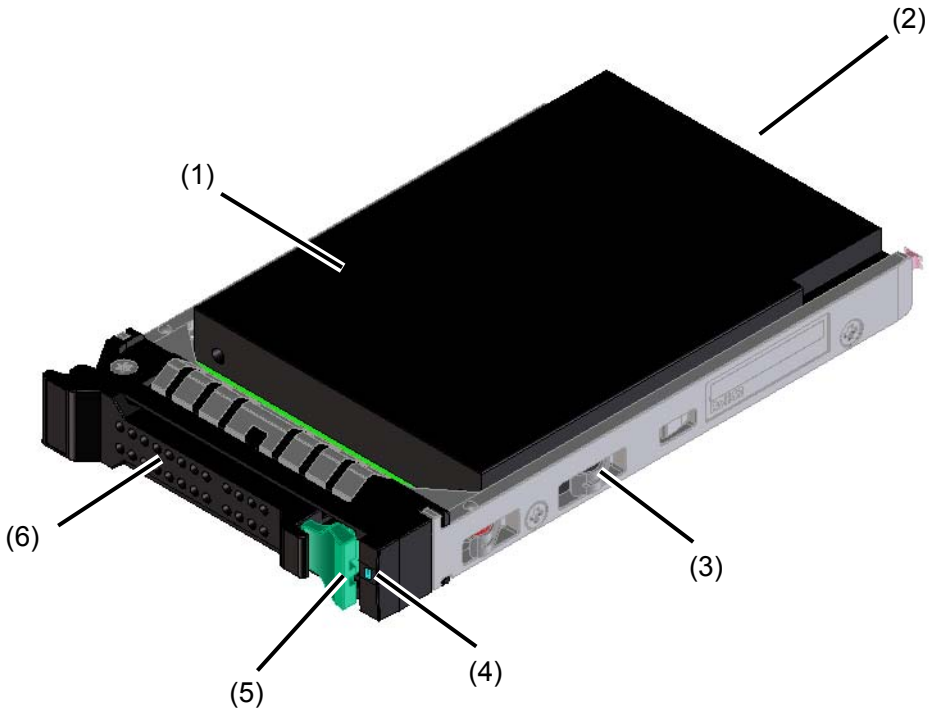
(9) 10BaseT/100BaseTX LAN Connector

(Maintenance LAN for maintenance service personnel)

(10) 10BaseT/100BaseTX/1000BaseT LAN Connector
(11) 10BaseT/100BaseTX/1000BaseT LAN Connector

Internal Hard Disk Drive

A hard disk drive is sold separately.
Pay careful attention to handle the hard disk drive in which operating system or software is installed.



(1) Hard Disk Drive
(2) Connector
This connector connects to the server.
(3) Drive Carrier
(4) Disk Access LED
(5) Lever
A lever to unlock the handle when removing the hard disk drive.
(6) Handle
A handle to hold for installing/uninstalling the hard disk drive.

LED Description

The following shows LED display and its description of the server.

EXPRESSSCOPE® Monitor LED



(1) System Power LED

(2) System Status LED (refer to the next page in addition to the following table for details).

(3) ID LED

This is used to check the position of the server, and can light the LED on/off by using the ID button of EXPRESSSCOPE® Monitor, the ID button of management module on the rear of the server, or Web Console as a console.

For example, the position of a server can be confirmed by lighting the ID LED of the target server to be operated or maintained when multiple servers are installed.
Be sure to turn the LED off when there is no need to confirm the position.
There is also an ID LED operated in the same way on the management module on the rear of the server.

The following table describes LED status and its description.

	Display	LED Status	Description
(1)		Off	DC Off (turn off DC in all Partitions)
		Lighting in green	DC On (turn On DC in one or more Partitions)
(2)		Off	System stopped
		Lighting in green	System running (normal operation)
		Lighting in amber	Fatal error/failure
(3)	ID	Off	Normal operation
		Lighting in blue	Lights when checking the position of the server.

The following describes display status of the System Status LED, its detailed description, and troubleshooting.

The System Status LED lights in green when the server runs properly. When the System Status LED is off,or lighting in amber, it indicates that some kind of error occurred in the server.

NOTE:

- **The cause of failure can be confirmed by referring to system event logs (SEL) by installing ESMPRO installed preliminarily.**
- **To turn off the power and reboot the server, perform the shutdown process before rebooting when the shutdown process can be performed from OS. When the shutdown process cannot be performed, reset, shut down forcibly, or restart the server after plugging in and off the power code.**

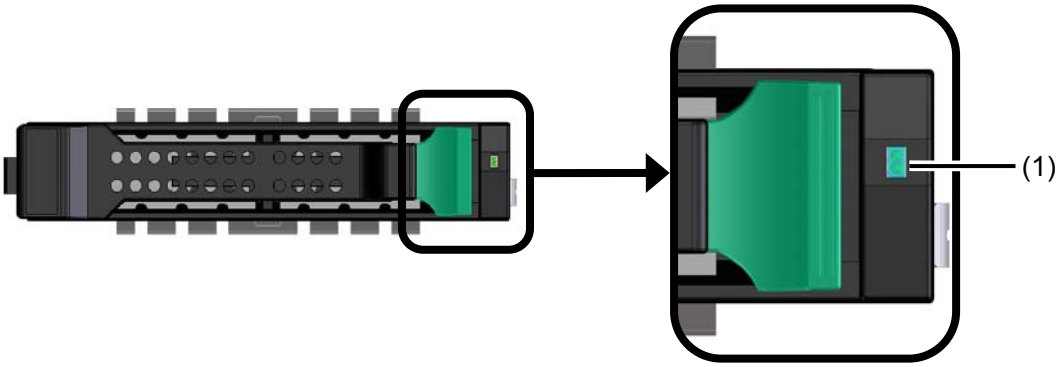
Refer to "Hardware Reset" of "Reset", and "Reset and Clear" explained in this Guide for resetting .
Refer to "Forcible Shutdown" of "Reset and Clear" for forcible shutdown.

The following table shows the display of the System Status LED, its description, and troubleshooting.

System Status LED Status	Description	Troubleshooting
Lighting in green	Operating properly.	—
Off	Power is tuned off.	-
	POST is in operation.	Wait for a while. The LED lights in green shortly after POST is completed.
	Error occurred in processor. (IERR)	Turn off the power and then turn on the power again. When some sort of error message is displayed on the POST screen, log the message and contact the maintenance service company.
	Detected abnormal temperature of processor. (Thermal-Trip)	
	Watch dog timer time out occurred.	
	PCI system error occurred.	
	PCI parity error occurred.	
	Uncorrectable error occurred in memory.	
	Uncorrectable error occurred in bus.	
	Completed POST during POST error occurrence.	
	Memory dump is requested.	Wait for a while until dump is collected.

Lighting in amber	Detected abnormal temperature..	Confirm that dust or dirt is not attached on the internal cooling fan. Confirm that the cooling fan is connected firmly as well. Replace it or contact the maintenance service company if the problem is not solved.
	Detected abnormal voltage.	Contact the maintenance service company.
	Detected individual failure in power supply unit.	Check the slot of failed power supply unit and replace it or contact the maintenance service company.
	Detected fan alarm.	
	Detected temperature warning.	
	Detected voltage warning	Contact the maintenance service company.
	Hard disk drive failed.	The operation can continue even if one hard disk drive fails depending on the RAID level when the drive is configured in the RAID system. However, it is recommended to replace the disk immediately and rebuild the hard disk drive (Hard disk drive is hot-swappable and can be replaced online).

Internal Hard Disk Drive LED



	LED Status	Description
(1)	OFF	Normal, No access
	Blinking in green	Accessing
	Lighting in green	Displaying location
	Blinking in amber	Rebuilding
	Lighting in amber	Fault exists

NOTE:
The operation can continue even if one hard disk drive fails depending on the RAID level when the logical drive is configured in the RAID system. However, it is recommended to replace the disk immediately and rebuild the hard disk drive (Hard disk drive is hot-swappable and can be replaced online).

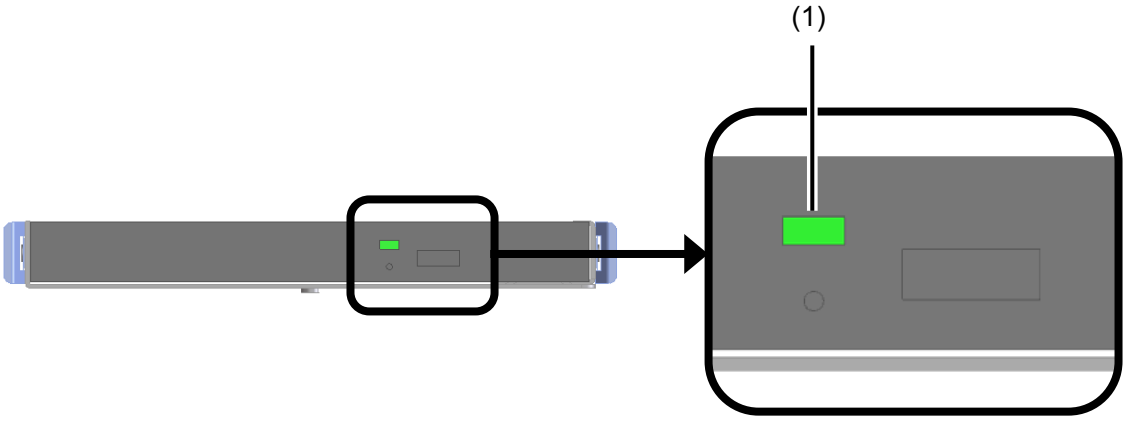
Blinking in amber

This indicates that a hard disk drive is rebuilding (it is not a failure). In the RAID system, data is rebuilt automatically (auto-rebuild function) after the failed hard disk drive is replaced. LED goes off after rebuilding is completed. LED lights in amber if rebuilding fails.

IMPORTANT:
Rebuilding discontinues when the power of the server is turned off while rebuilding. Replace the hard disk drive online (hot-swapping) again and start over rebuilding after rebooting the server. Note the follow the precautions below when using the auto-rebuild function.

- **Do not turn off the power (auto-rebuild function is not started once the power is turned off).**
- **Take at least 60 seconds interval between attachment/removal of a hard disk drive.**
- **Do not replace a hard disk drive if there is another hard disk drive being rebuilt.**

DVD Drive Access LED

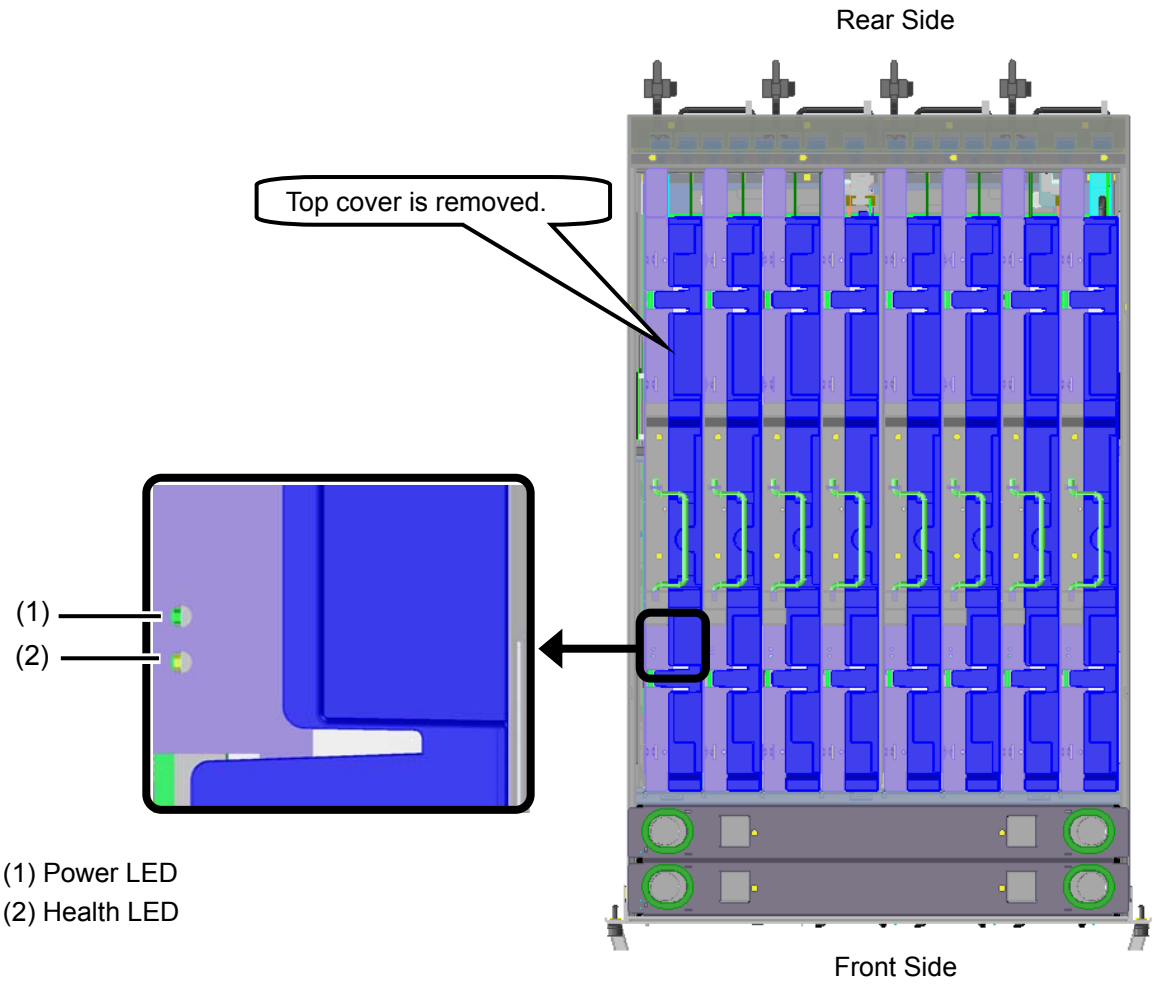


The following table shows LED status and its description.

	LED Status	Description
(1)	Off	Not accessing the DVD drive
	Blinking in green	Accessing the DVD drive

Processor Memory Module LED

The following shows the position and description of LEDs mounted on processor memory modules.
LEDs on processor memory modules can be checked by removing the top cover.
For processor memory modules 1-8, each LED is mounted in the same position.



(1) Power LED
(2) Health LED

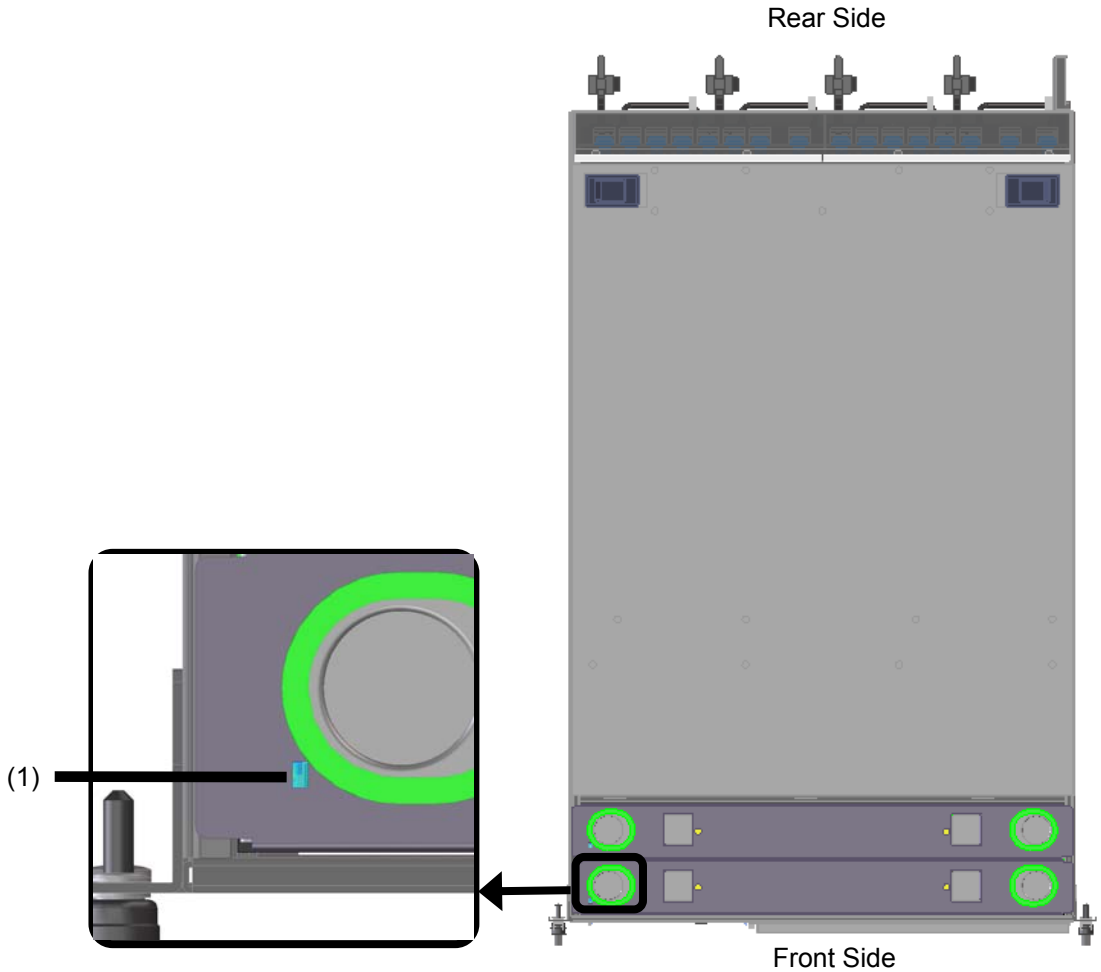
The following table shows LED status and its description.

	LED Status	Description
(1)	Off	SL power Off (Possible to mount and unmount
	Lighting in green	SL power On (Impossible to mount and unmount)
(2)	Off	Normal processor memory module
	Lighting in amber	Processor memory module failure

Cooling Fan LEDs

When a cooling fan of the server fails, the failed LED of the cooling fan lights in amber.
The failed cooling fan can be hot-swappable.

- Do not remove a non-failed cooling fan. In the case of failure, replace the cooling fan immediately or contact the maintenance service company to request replacement without continuing the operation.
- Do not remove the cooling fan while the server is in operation and the top cover is being removed.
- Do not remove the failed cooling fan until the time of replacement. A normal cooling fan needs to be installed in no more than 60 seconds after removal.



(1) Cooling Fan Status LED (FAN module)

The following table shows LED status and its description.

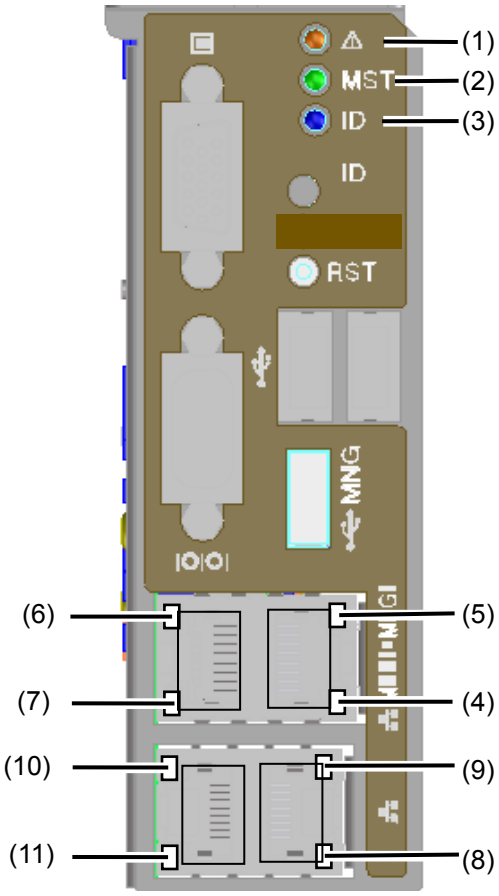
	LED Status	Description
(1)	Off	Normal cooling fan or DC Off
	Lighting in amber	Cooling fan failure

Management Module LEDs

The following shows the position and description of management module LEDs.
* Each LED is the same when two management modules are mounted.

Rear of Server





(1) Status LED
(2) Master LED
(3) IDLED
(4) 10BaseT/100BaseTX/1000BaseT LAN Speed LED *
(5) 10BaseT/100BaseTX/1000BaseT LAN Status LED *
(6) 10BaseT/100BaseTX LAN Speed LED *
(7) 10BaseT/100BaseTX LAN Status LED *
(8) 10BaseT/100BaseTX/1000BaseT LAN Speed LED
(9) 10BaseT/100BaseTX/1000BaseT LAN Status LED
(10) 10BaseT/100BaseTX/1000BaseT LAN Speed LED
(11) 10BaseT/100BaseTX/1000BaseT LAN Status LED

* (4), (5): Management LAN for customers
(6), (7): Maintenance LAN for maintenance service personnel

The following table shows LED status and its description.

	LED Status	Description
(1)	Off	Management module is not operating
	Lighting in green	Normal management module
	Lighting in amber	Abnormal management module
(2)	Off	Abnormal management module
	Lighting in green	Normal management module
(3)	Off	Normal
	Lighting in blue	Lights when checking the position of the server
(6)	Off	Indicates that network communication with 10 Mbps is possible
	Lighting in green	Indicates that network communication with 100 Mbps is possible
(5) (7)	Off	Indicates Link down
	Lighting in green	Indicates Link up
	Blinking in green	Indicates the state of being transmitted/received
(4) (8) (10)	Off	Indicates that network with 10 Mbps is allowed
	Lighting in green	Indicates that network with 100 Mbps is allowed
	Lighting in amber	Indicates that network with 1000 Mbps (1Gbps) is allowed
(9) (11)	Off	Indicates Link down
	Lighting in green	Indicates Link up
	Blinking in green	Indicates the state of being transmitted/received

Supplementary note

LAN Status LED (LINK/ACT LED) : (5), (7), (9), (11)

This displays each network port status, and lights in green (LINK) while electrical power is supplied to the server and HUB and they are connected normally. This blinks in green (ACT) while the network port is transmitting/receiving.
Check the network cable status and cable connection status if the LED does not light even in the LINK state. The network (LAN) controller may have failed if the LED does not sill light. Contact the distributer from which you purchased or maintenance support company.

LAN Speed LED (100/10 LED) : (6)

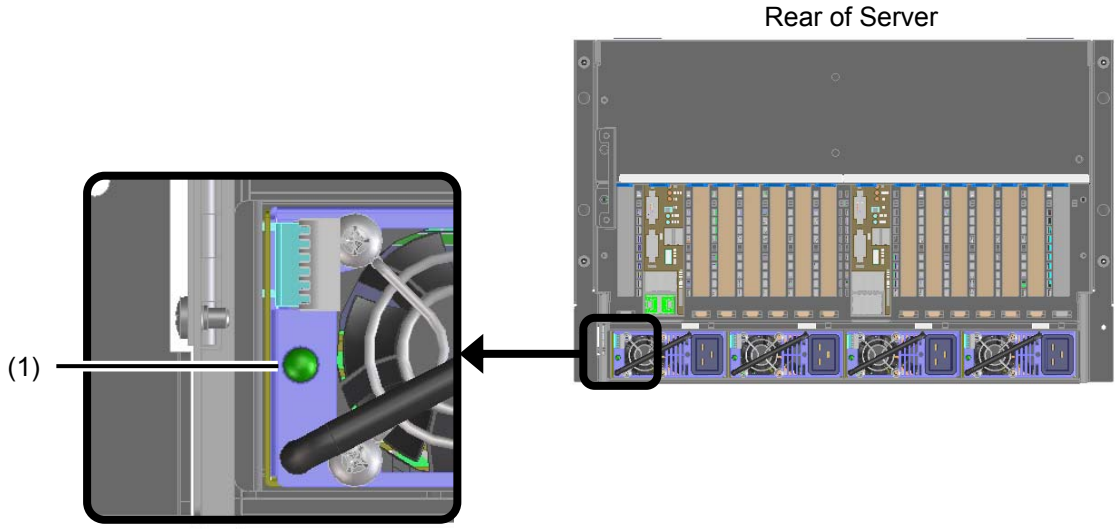
This LED indicates which of network interfaces is used by communication mode of the network port. lighting in green indicates that 100 Mbps is used. LED that is off indicates that 10 Mbps is used.

LAN Speed LED (1000/100/10 LED) : (4),(8), (10)

This LED indicates which of network interfaces is used by communication mode of the

network port. Lighting in amber indicates that 1000 Mbps is used. Lighting in green indicates that 100 Mbps is used. LED that is off indicates that 10 Mbps is used.

Power Supply Unit LED



(1) PSU Status LED

The following table shows LED status and its description.

	LED Status	Description
(1)	Off	AC Power off
	Blinking in green	DC Off status
	Lighting in green	DC On, normal power supply module
	Lighting in amber	Abnormal power supply module

PCI Slot LED

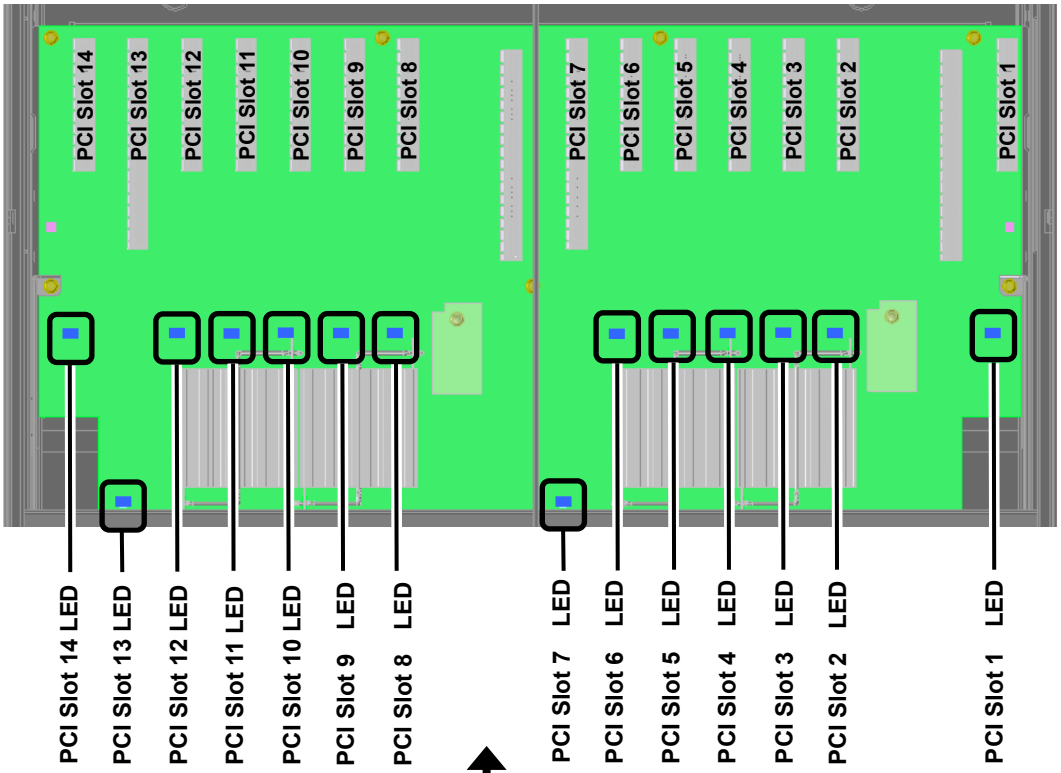
The power LEDs is located near PCI slots on the base module.

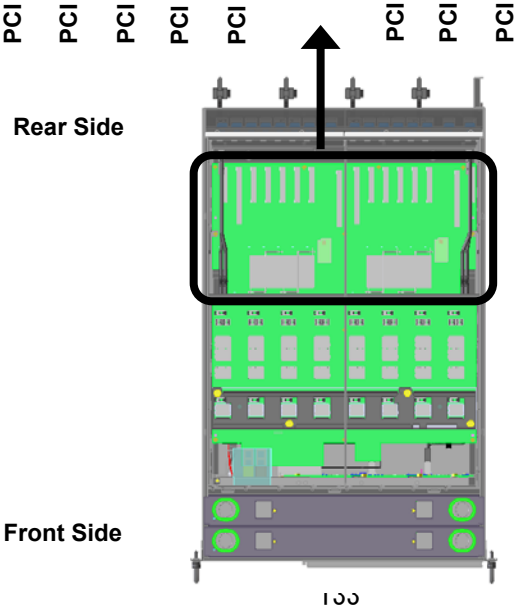
IMPORTANT:
The PCI card cannot be replaced by customers.

(1) PCI Slot Power LEDs

The following table shows LED status and its description.

	LED Status	Description
(1)	Off	DC Power is off.
	Lighting in green	DC Power is on.





Installation and Connection

Describes installation and connection of the server.

Installation

This server should be mounted in a standard EIA 19-inch rack cabinet.

Installation of the rack cabinet

Refer to the documentation attached to the rack or contact your service representative for the installation of the rack cabinet.
Make sure that the rack is the one specified for the server.

WARNING



Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. Refer to descriptions after page iii for details.

●Do not use the server in any unapproved place.

CAUTION



Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after page iii for details.

- Do not carry or install the rack only by a single person.
- Do not install the rack in a place where the load is concentrated on a specific point.
- Do not install any components only by a single person.
- Do not pull out a device from the rack if the rack is unstable.
- Do not pull out more than one device at a time from the rack.
- Do not provide wiring exceeding the rating power.

The following explains a site suitable for installing the rack cabinet.

● Place having available space of 1 m or more of front and rear, 60 cm or more of rigt and left, and 50 cm or more of upper of the server.

● The rack must be connected each other if two or more racks are installed.

● The stabilizers must be installed.

● Room that satisfies the following conditions for operation: * Temperature: 10 to 35ºC Humidity: 20 to 80% (no condensation)

● Wall outlet to connect the supplied power cord.

● On level and strong floor (can stand the waight of 600 ㎏ or more)

We recommend that the server should be used in a room where temperature is in the range between 15 to 25ºC.

IMPORTANT:
Increase in temperature within the rack and air flow

If several servers are installed in the rack or if the ventilation within the rack is not enough, the temperature in the rack may be raised by the heat generated from the units, and be higher than the operation temperature of the server (10 to 35°C).

This causes the server to operate improperly. Review the air flow within the rack or in the room and take sufficient measures in order to prevent the temperature within the rack from exceeding the warranted temperature range during the system operation.

Do not install the rack in the places listed below. Not doing so may cause some malfunctions to occur.

Do not:

● Locate the rack in a narrow space that would prevent devices from being pulled out from the rack completely.

● Locate the rack on a floor that cannot bear the total weight of the rack and devices mounted in the rack.

● Locate the rack in a place where stabilizers cannot be installed or where the rack can be installed only after proper earthquake-resistant is constructed.

● Locate the rack on an uneven or slanting floor

● Locate the rack in an area with drastic temperature change (near a heater, air conditioner, or refrigerator).

● Locate the rack where intense vibrations may be generated.

● Locate the rack where corrosive gas may be generated (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc), moreover where the ingredient which promotes corrosion, conductive metal (sodium chloride, sulfur, etc.), etc. are contained in dust or air.

● Locate the rack in a place where some objects may fall on the rack.

● Locate the rack near a device that is generating intense magnetic fields (such as a TV, radio, broadcast/communication antenna, power transmission wire, and electromagnetic crane.) If unavoidable, contact your service representative to request proper shielding.)

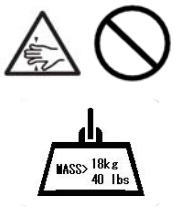
● Locate the rack where the power cord of the server must be connected to an AC outlet that shares other devices with large power consumption.

● Locate the rack next to an equipment that generates power noise (e.g., contact spark at power-on/power-off of commercial power supply through a relay). If you must install the server close to such equipment, request your service representative for separate power cabling or noise filter installation.

Mounting/Unmounting the server to/from Rack

Mount the server to a rack (the unmounting procedure is also described).
If you purchased internal optional products sold separately, mount it before mounting the server to a rack.

⚠ CAUTION

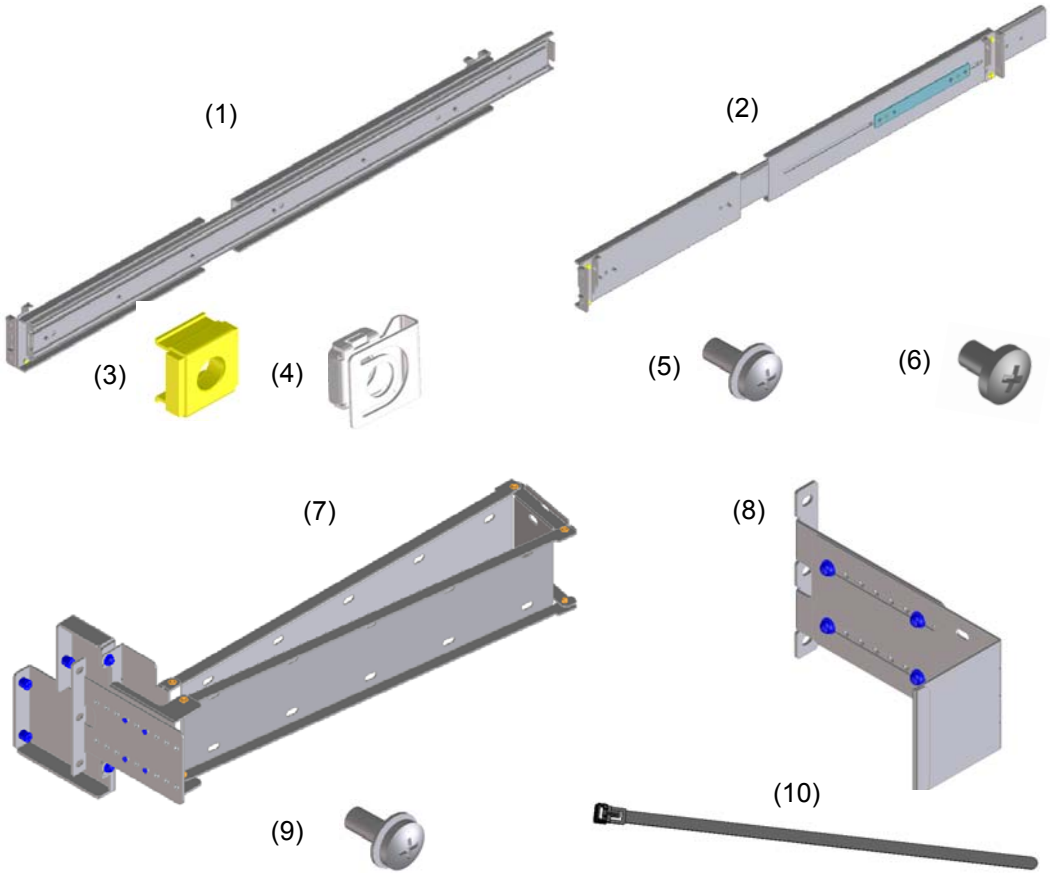


Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after page iii for details.

- Ensure to use a lifter to lift the server and support the bottom of the server firmly to install or relocate it. If there is no lifter, carrying the server by less than 4 persons may cause backache.
- Do not install the server in other than the location specified.
- Do not get your fingers caught.
- Do not unmount the server when the rack is unstable. Pull out the stabilizer installed at the front bottom of the rack.
- Do not mount the server while leaving the cover removed.

Checking Parts to be Mounted

Confirm that the following parts are provided for mounting to the rack.

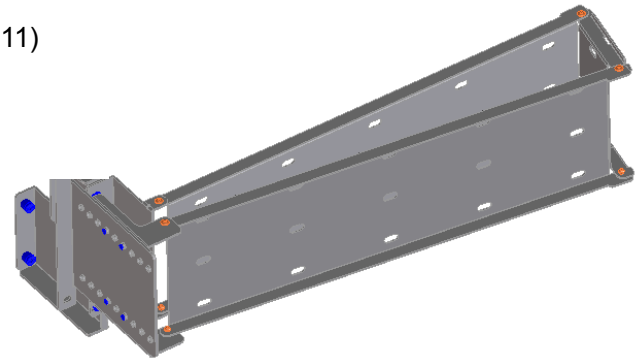


	Name（Rack Mount Kit）	Quantity	Remarks
(1)	Slide Rail Assembly (L)	1	
(2)	Slide Rail Assembly (R)	1	
(3)	Rack Nut(for square holes of rack)	4	
(4)	Rack Nut(for round holes of rack)	4	
(5)	Screw A (for fixing rack）	8	Length 16mm, two positions each for front, rear, right, and left side
(6)	Screw B (for fixing inner rail)	12	Length 5mm, six positions on right and left side
	Name(Standard Cable Arm Kit)	**Quantity**	**Remarks**
(7)	Support Bracket 1	1	Cable Arm
(8)	Support Bracket 2	1	Cable Cover
(9)	Screw C (for support bracket)	5	Length 16mm, three screws for rear left, two screws for rear right
(10)	Repeat Tie	25	
(3)	Rack Nut(for square holes of rack)	5	
(4)	Rack Nut(for round holes of rack)	5	

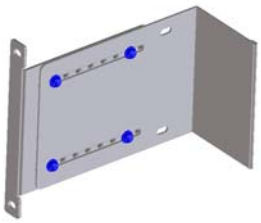
IMPORTANT:
Do not mount to the rack other than that dedicated to the server.

Confirm that the following parts are provided when using optional cable arm rather than standard one.

(11)



(12)



(13)



(14)



(15)



⑯



	Name(Optional Cable Arm Kit)	Quantity	Remarks
(11)	Support Bracket 1	1	Cable Arm
(12)	Support Bracket 2	1	Cable Cover
(13)	Rack Nut(for square holes of rack)	5	For fixing Support Bracket
(14)	Rack Nut(for round holes of rack)	5	For fixing Support Bracket
(15)	Repeat Tie	25	
(16)	Screw	5	Length 16mm

Required Tools

Tools required for mounting to rack are a Phillips-head and a flat-blade screw driver.

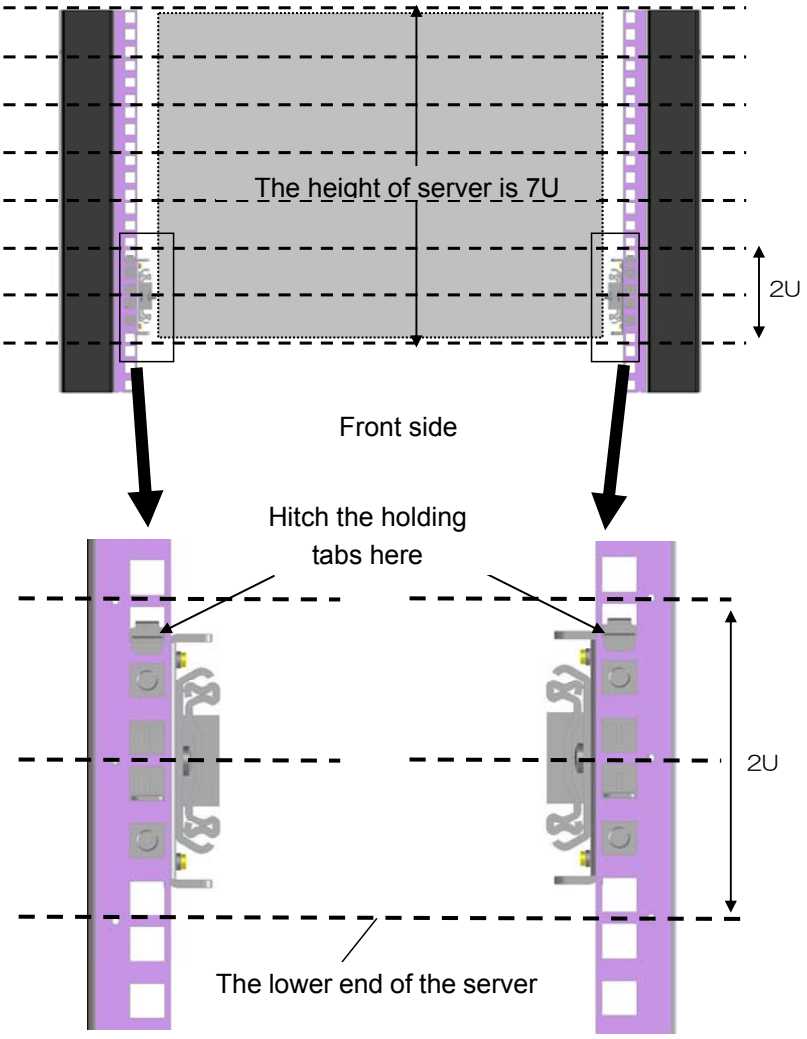
NOTE:
A minus driver is used when changing the position of rack nuts.

Mounting Procedure

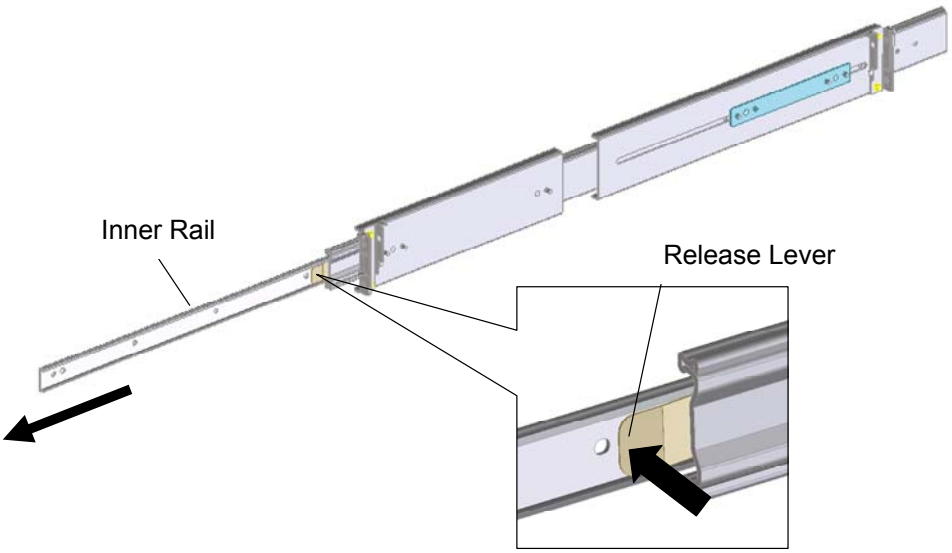
Mount the server to the rack by following the procedure below.

1. Specify the position (height) to mount the server.

The height of the server is 7U. The following image shows the positional relation between the lower side of the server and lower side of the slide rail assembly.Hitch the holding tabs to the same height of the rack for both front side and rear side.

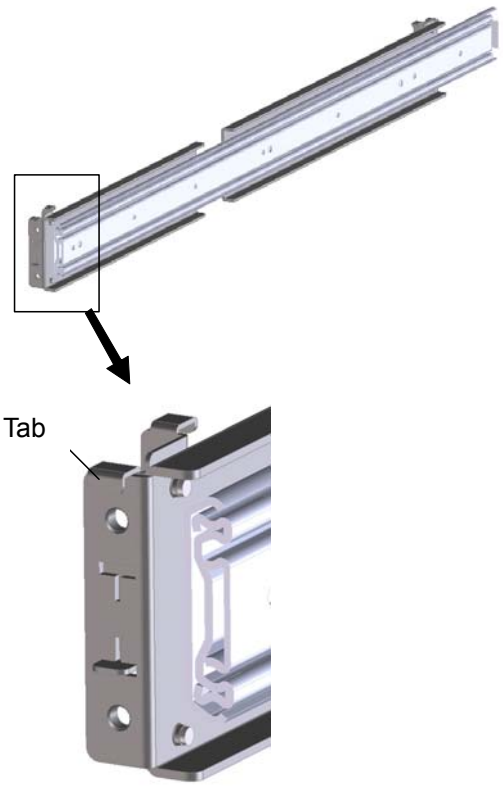


2. Remove the Inner Rail to be attached to the server from the Slide Rail assembly. Pull the Inner rail while pushing the Release Lever.

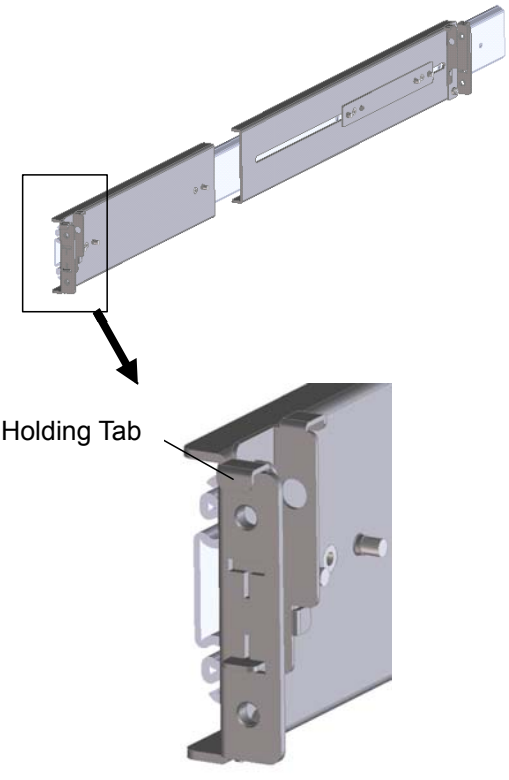


There are two types of the slide rail assemblies for the left and right. Check the difference between them with the figures below.

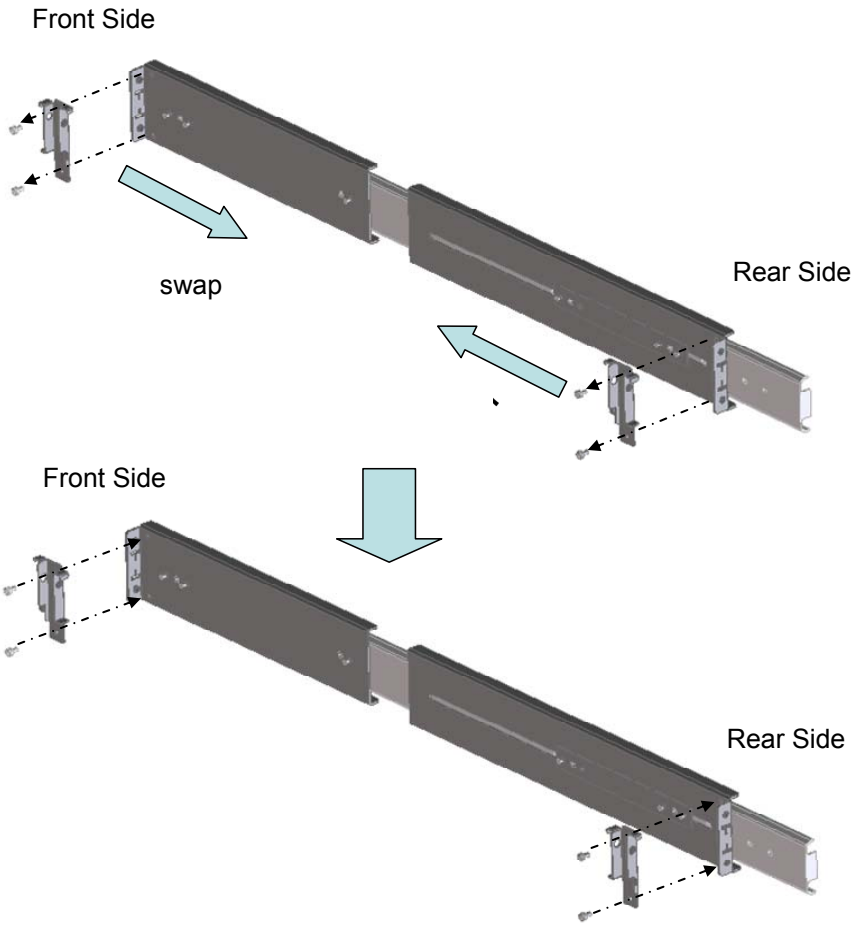
Slide Rail assembly(L)



Slide Rail assembly(R)



IMPORTANT:
At the beginning, the slide rail assemblies are assembled so that they are suited for the rack with square holes. Before mounting to the rack with round holes, swap two brackets of the front and rear side.

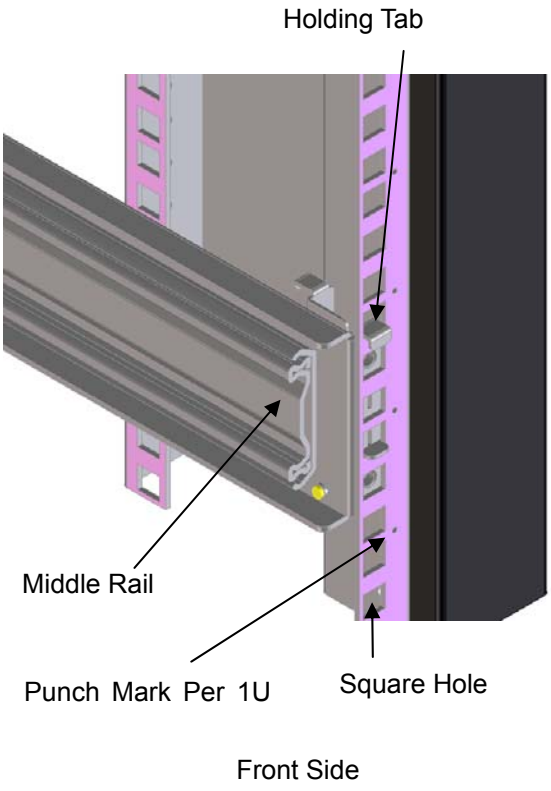


3. Place the slide rail assembly on the front side of the rack onto the position specified in step 1. Hitch the holding tab to the square hole.

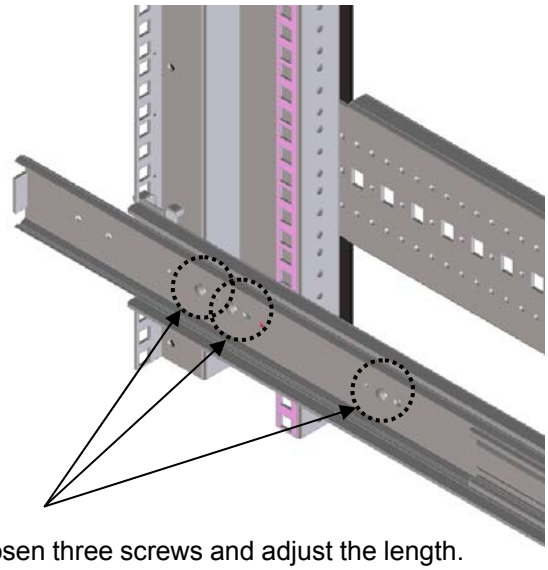
IMPORTANT:
When mounting the slide rail, the middle rail may fall out if the slide rail inclines.

NOTE:

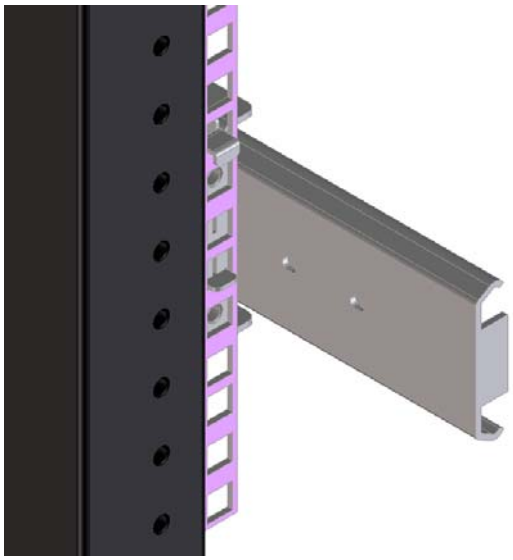
- **Check the installation direction of the slide rail assembly. Ensure that the bracket side (side without rail) is placed outside the rack when hooking to a square hole of the rack.**
- **There are square holes for screwing on pillars on the front and rear side of rack. There is a circular punch mark per 1U unit on a rack manufactured by NEC. Use them at installation as a guide.**



4. Determine the position of the rear side of the slide rail assembly.
   The rear side of the slide rail assembly can be adjusted depending to the rack depth. Loosen three screws shown below and adjust the length. Adjust the position of the slide rail assembly on the rear of the rack and mount it in the same way for the front side.



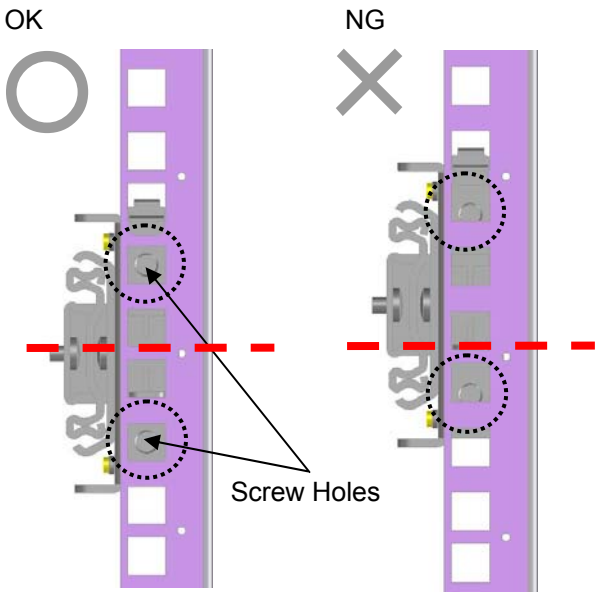
Loosen three screws and adjust the length.



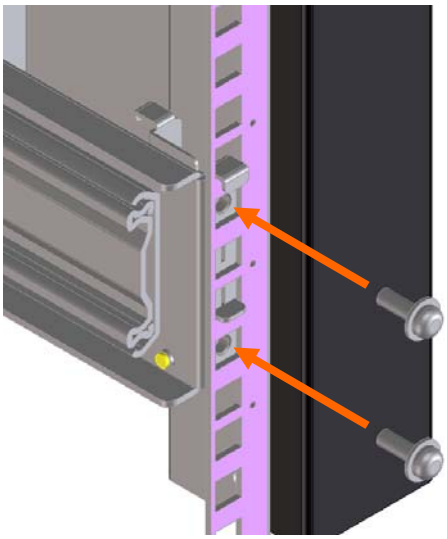
Rear Side

NOTE:

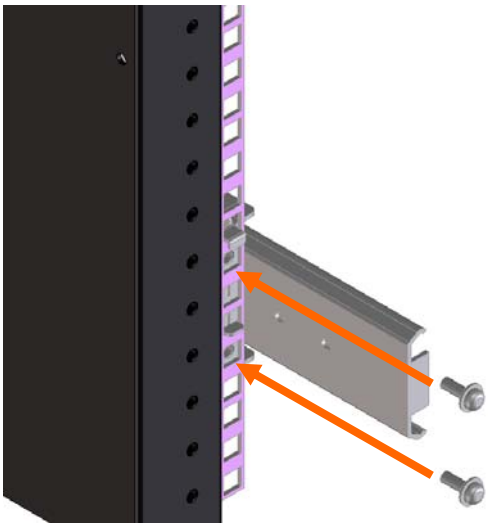
- **Ensure that screw holes (4 holes at front and rear) of the rail can be seen with the frame tip of the slide rail assembly touches completely with the frame of square holes.**
- **Confirm that the slide rail assembly is positioned horizontally.**



5. Fix the slide rail assembly at two positions on the front side and two positions at the rear side (total four positions) by using screw A.

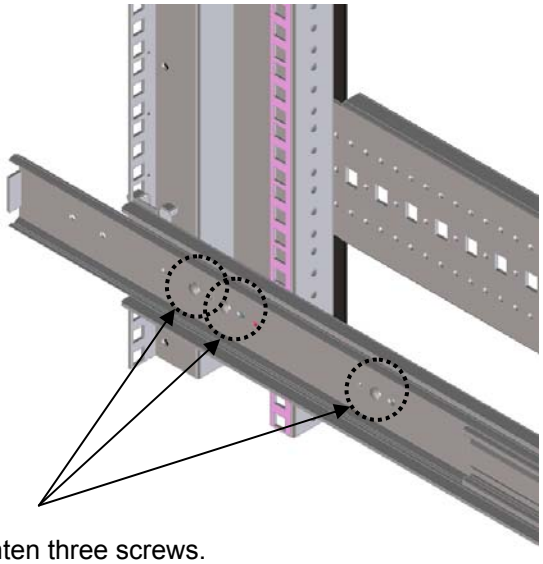


Front Side



Rear Side

6. Tighten three screws that were loosened to adjust the length in step 4.



Tighten three screws.

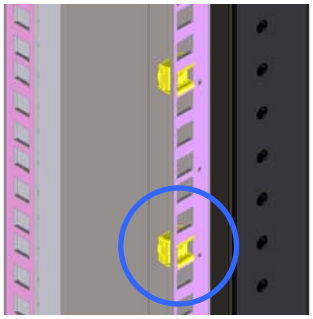
7. Mount the slide rail assembly on the opposite side in the same way described in Step 2 to 6.

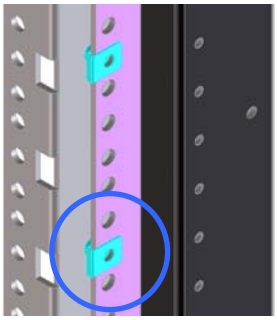
NOTE:
Confirm that it is mounted at the same height as that of the already mounted slide rail assembly.

IMPORTANT:
Mount all rail assemblies before mounting servers when multiple servers are mounted.

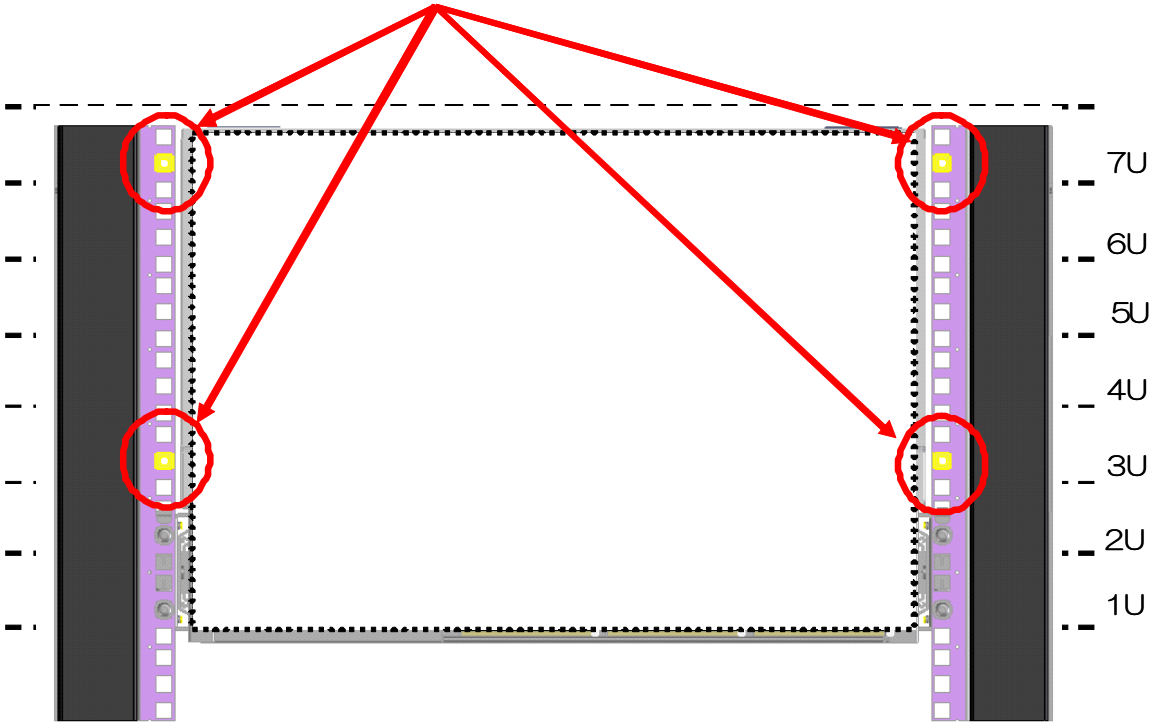
8. Mount rack nuts fixing the server to the rack at four positions circled in red shown below (image of mounting the server to rack).

NOTE:
There are two types of rack nuts for the square hole and round hole of the rack.



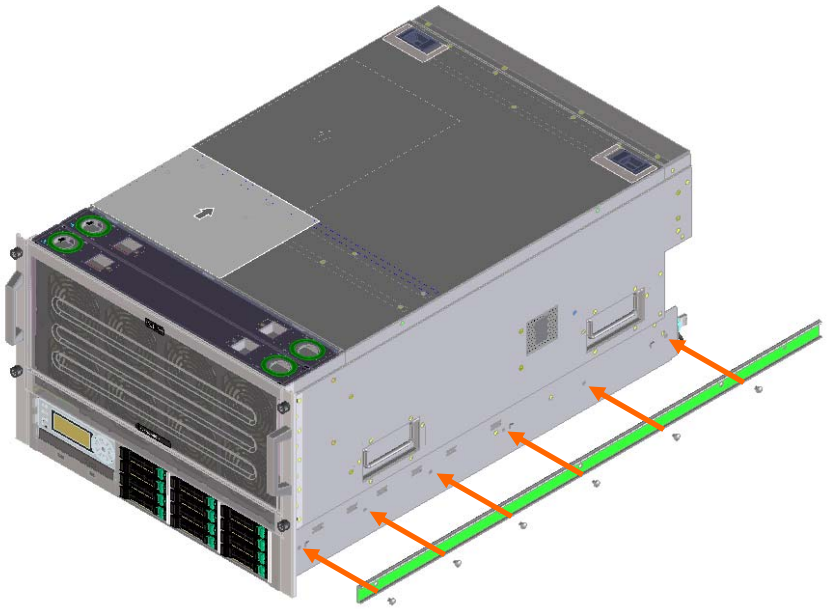


Mount rack nuts to be positioned in the center of the 3rd U and the 7th U from the punch mark of the rack on the lower side of the server.



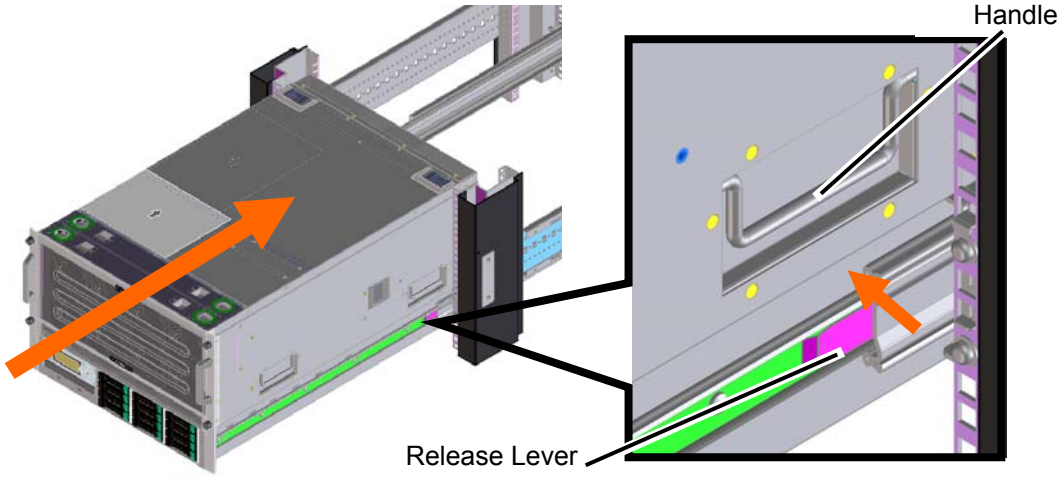
9. Remove the server from the box carefully and place it on a flat surface gently.

10. Attach the inner rail removed in step 2 to the server at six positions on the right side and six positions on the left side (total 12 positions) by using screw B.



11. Mount the server from the front of the rack along the mounted rail assembly by using a lifter. Push the release lever shown below to unlock before inserting the server
Confirm that there is no obstruction in the location for mounting the server to the rack such as rear of rack, etc. or the handle is placed downwardly before mounting the server.

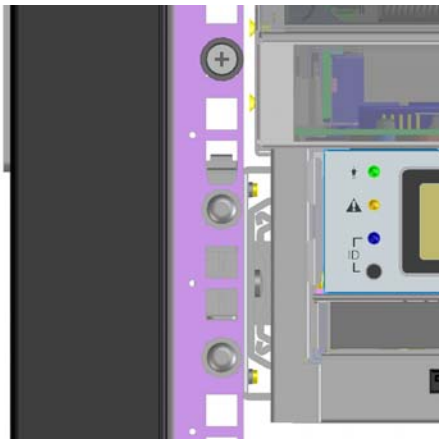
IMPORTANT:
●Install the stabilizer to the front bottom of the rack first when mounting the server to the rack.



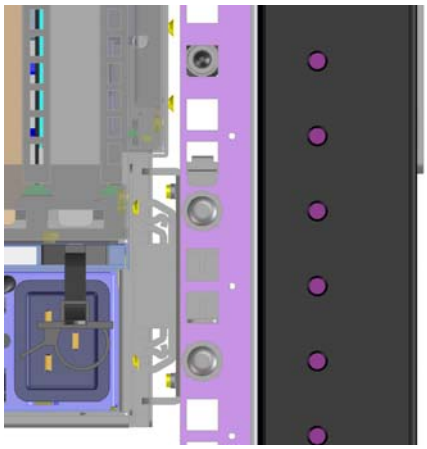
⚠ CAUTION

●Be careful not to catch your finger when pressing the release lever to mount the server into a rack.

The following image shows when the server is mounted to the rack.
The front view of the server is actually hidden by the plate to which the handle is mounted.



Front Side



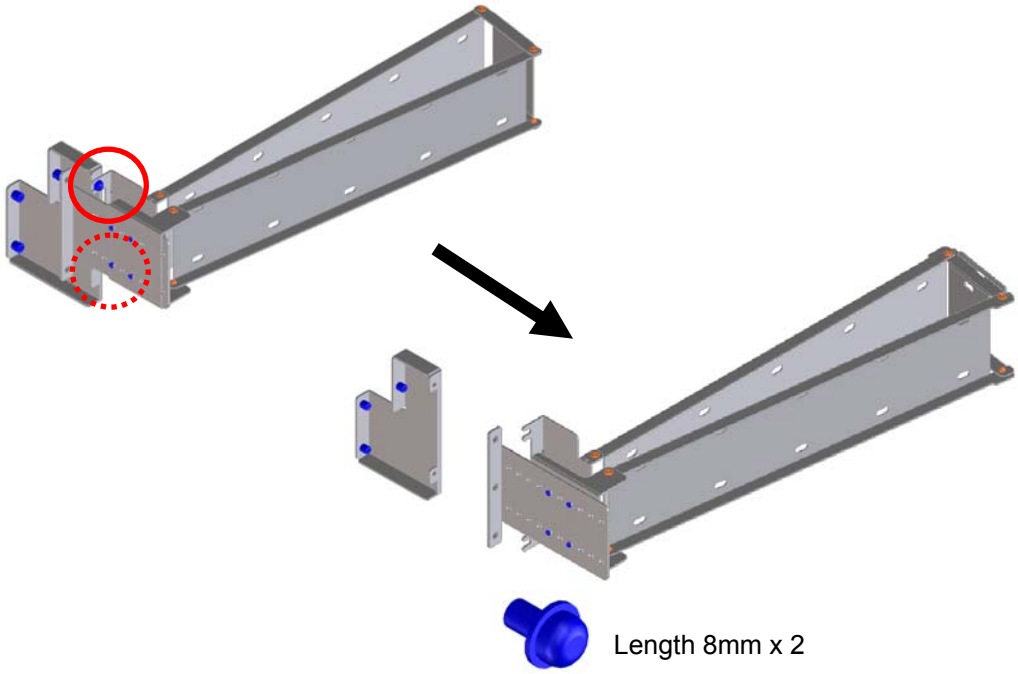
Rear Side

12. Fix the server to the rack by using four screws (circled in red shown below) on the front of the server.
    Fix them to the rack nuts mounted in step 8.

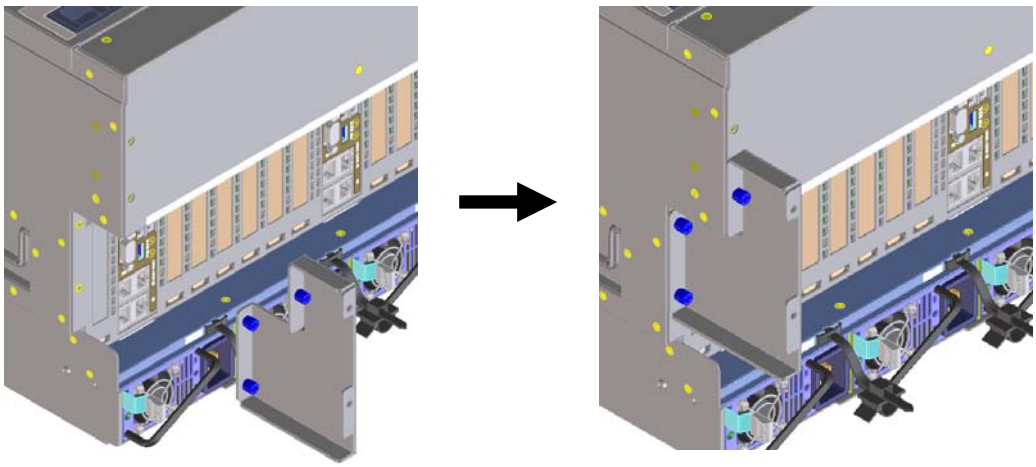


The following section describes how to attach the standard cable arm. Refer to the step 21 and later when using the optional cable arm.

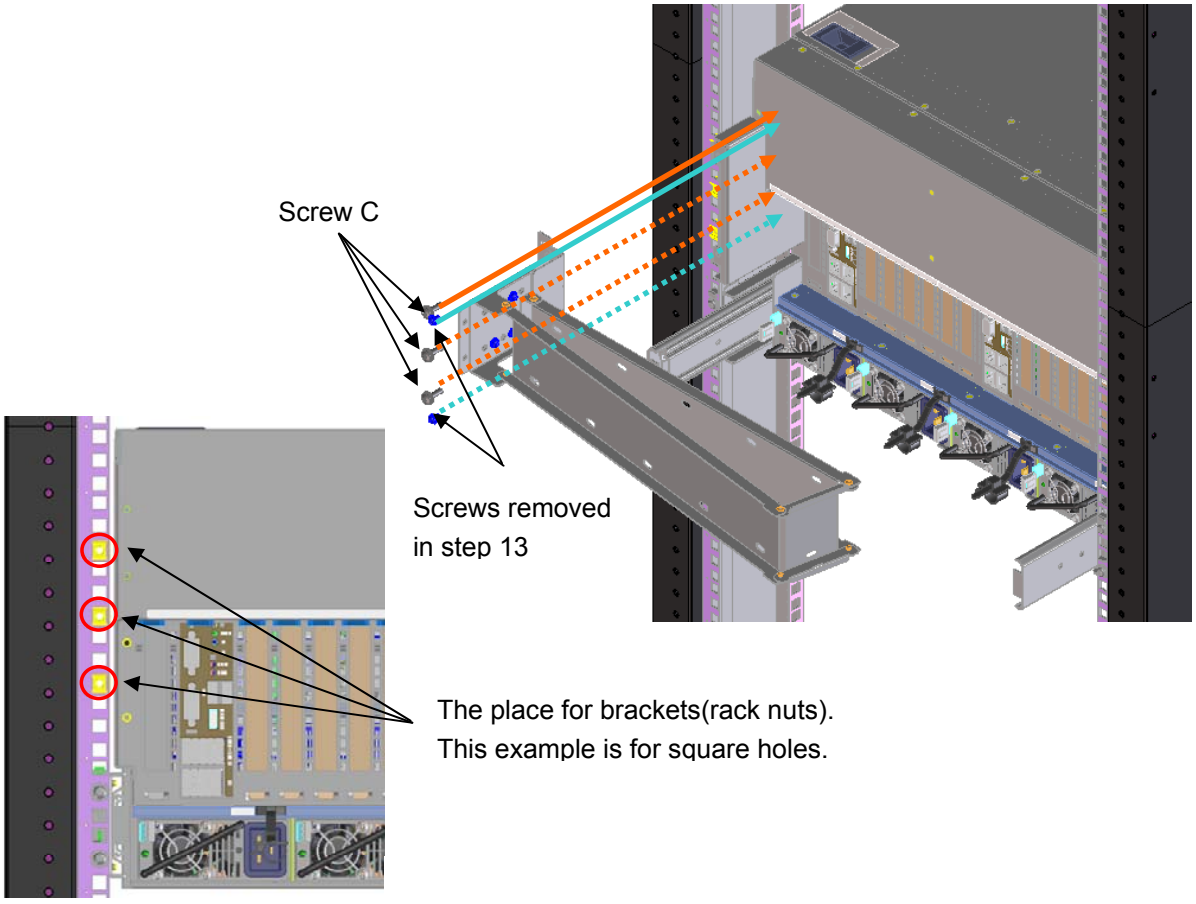
13. Remove the server-attached plate attached to the cable arm to the server.
    It is fixed by two screws at the positions circled in red.
    Be careful not to lose the removed two screws as they will be used later.

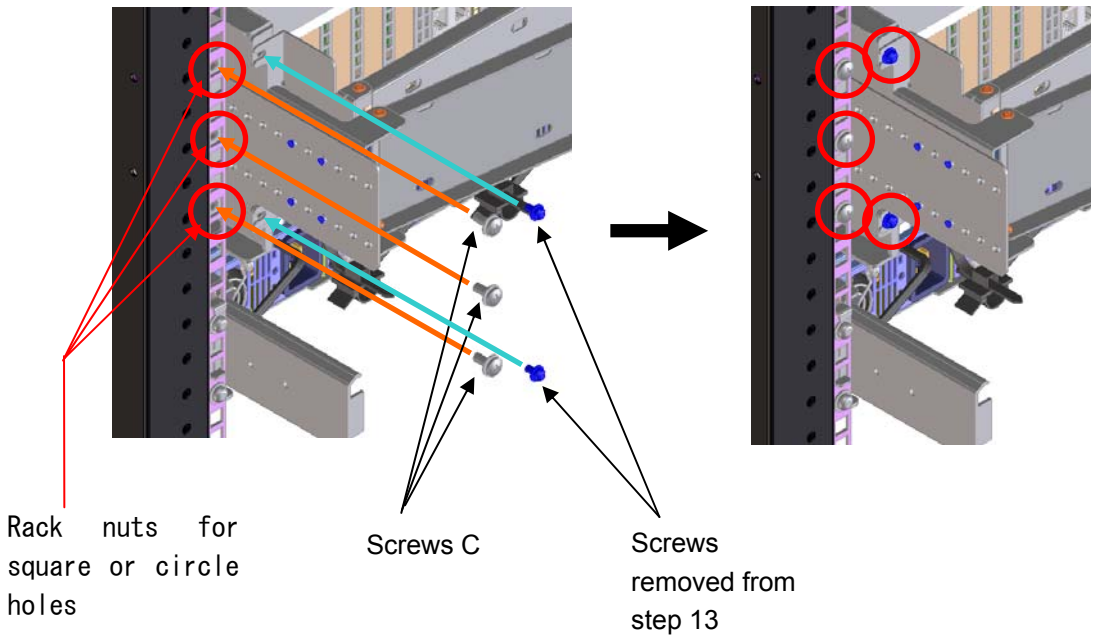


14. Attach the plate that was removed from the cable arm in step 13 to the rear of the server.
    (Three positions for screwing)

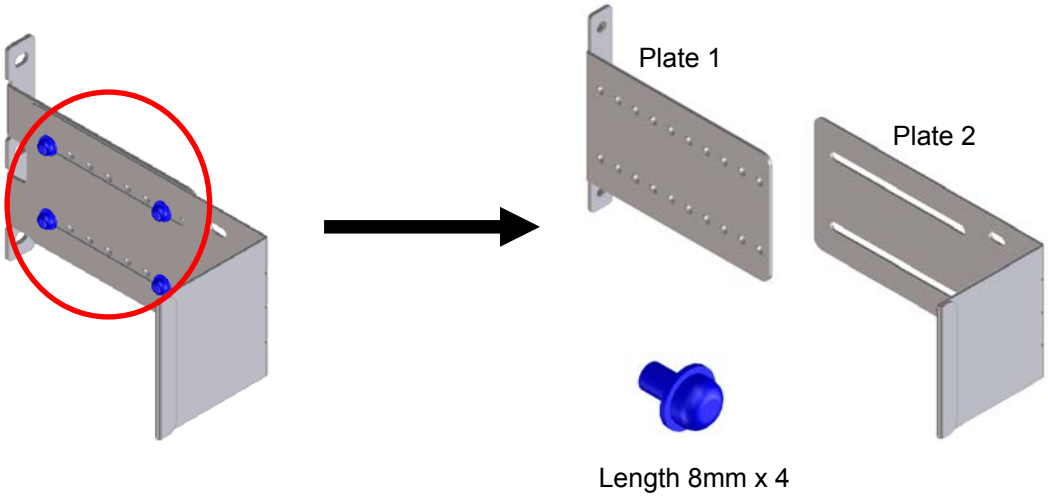


15. Attach the cable arm to the slide rail assembly through square holes by using three “Screws C.”
    Attach the cable arm to the server-attached plate that was attached to the server by using the two screws removed in step 13.

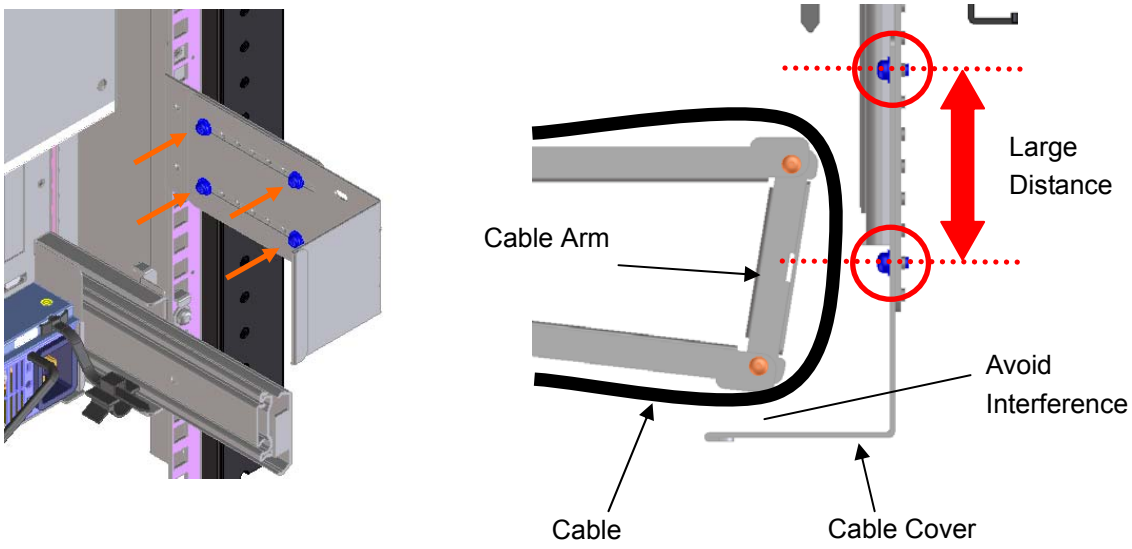




16. Remove dog-leg plates from the cable cover. The dog-leg plates are fixed by four screws in the depositions circled in red shown below.
    Be careful not to lose the removed 4 screws as they will be used later.

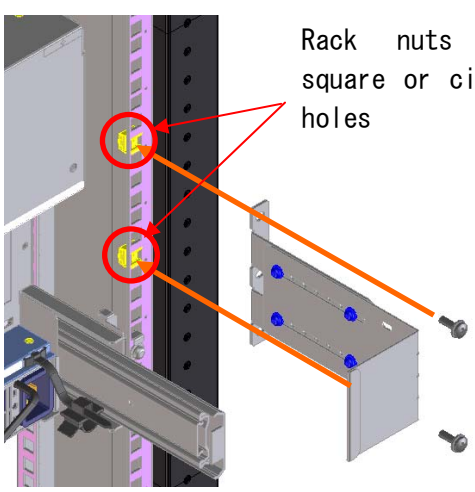


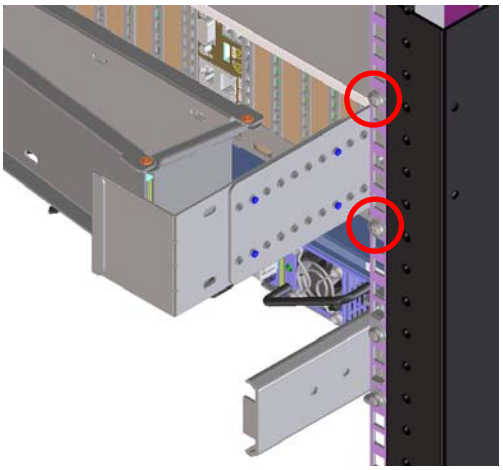
17. Attach the plate 1 to the plate 2 by using the four screws removed in step 16.
    Attach the plate by adjusting to avoid interference of the cable arm with the cable cover and also to avoid interference of the cable with the cable cover when mounting the cable to the cable arm, as well as by having the large distance between screws in the forward and backward direction.

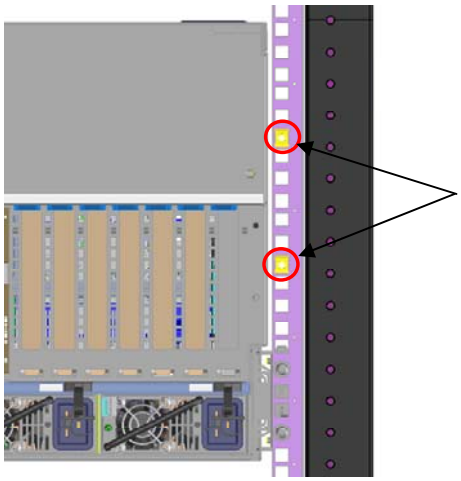


18. Attach the cable cover to the rack by using 2 “Screws C.”

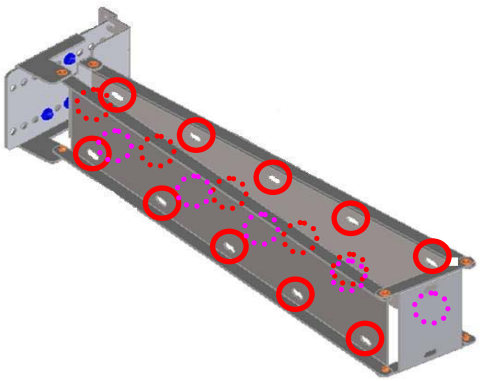
NOTE:
Loosen the 4 screws on the front of the server that were tightened in step 12 and move the server back and forth to check that the server can be pulled out from or inserted into the rack smoothly. Fix the rack again after checking it.





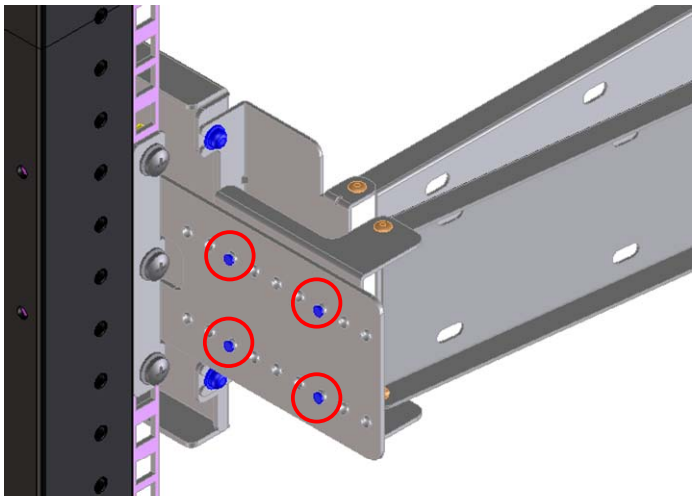


19. Attach repeat ties to the cable arm.
There are 25 repeat ties provided.
Of them, 20 repeat ties are attached to 20 holes of the cable arm and used to fix the cable.
One of them is used to fix the cable arm to the cable cover so that the cable arm is in stable condition.

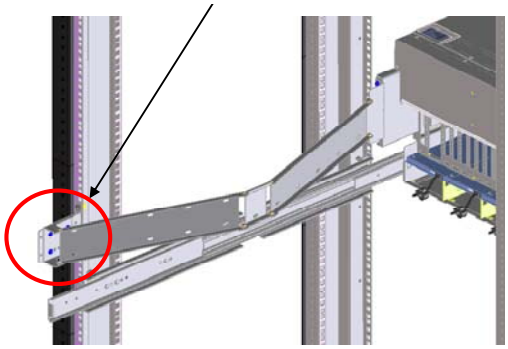


20. Adjust the support bracket corresponding to the rack length.

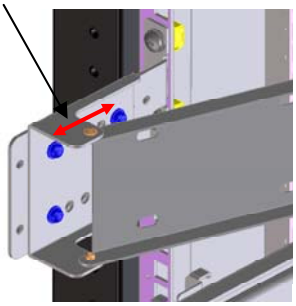
NOTE:
There are many holes on the support bracket so that it is adjustable to be fit to the rack.



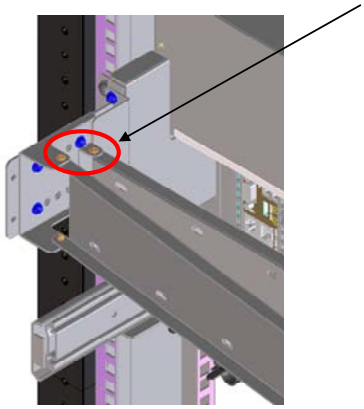
[1]Fix the arm at the place where the system can be pulled out from the rack completely.



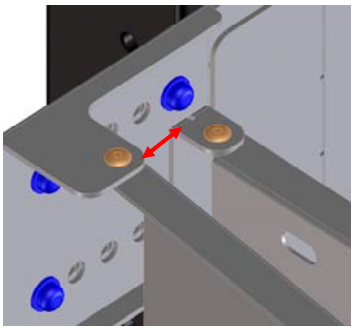
as far as possible



[2]make sure not to hit each other when the arm is closed.



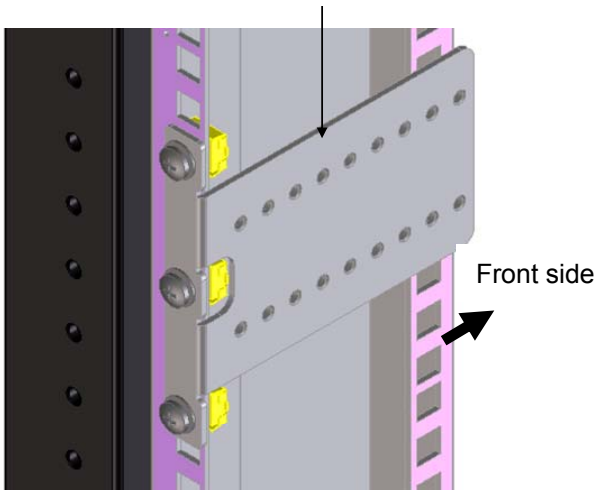
5 – 40mm depending on the rack size

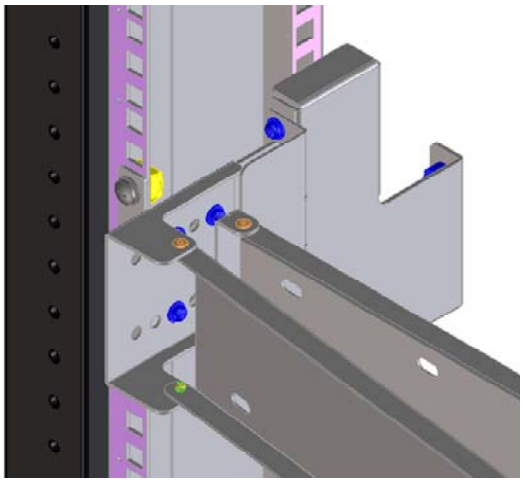


NOTE:
It is possible to mount the brackets in reverse so that it is fit to long length of rack.

Support bracket 1 (Cable arm side)

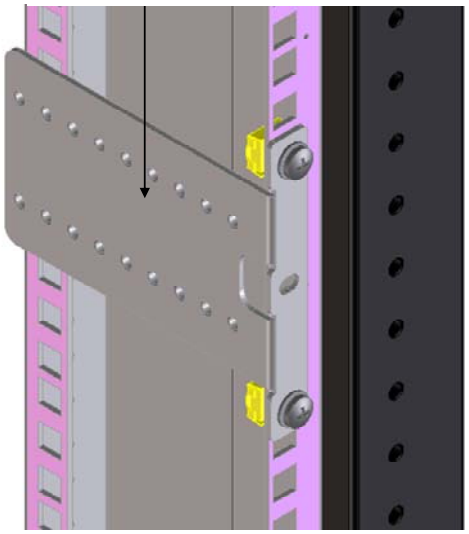
Fix the parts in reverse

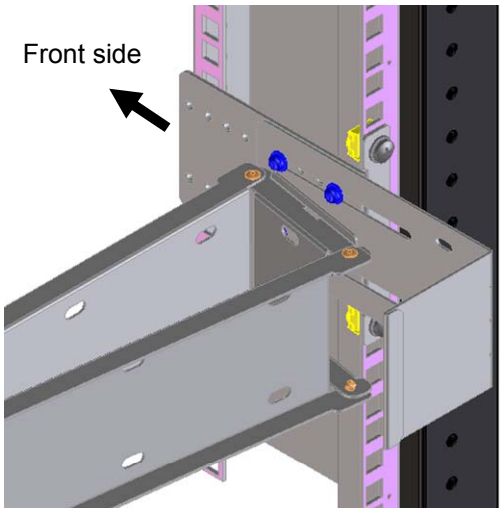




Support bracket 2 (Cable cover side)

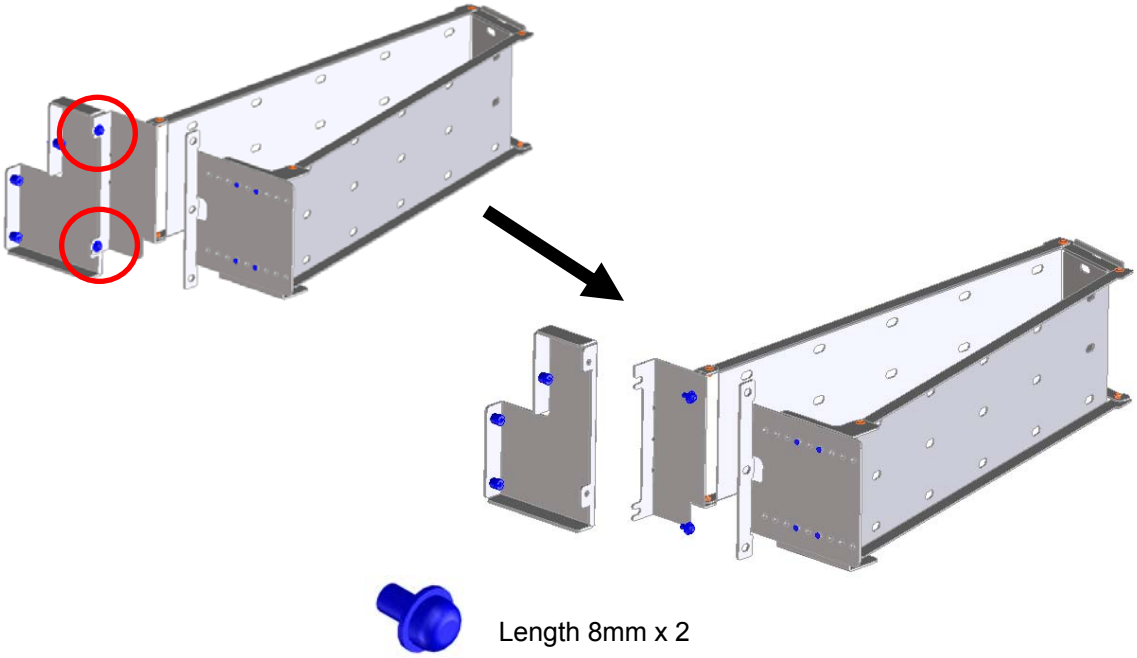
Fix the parts in reverse





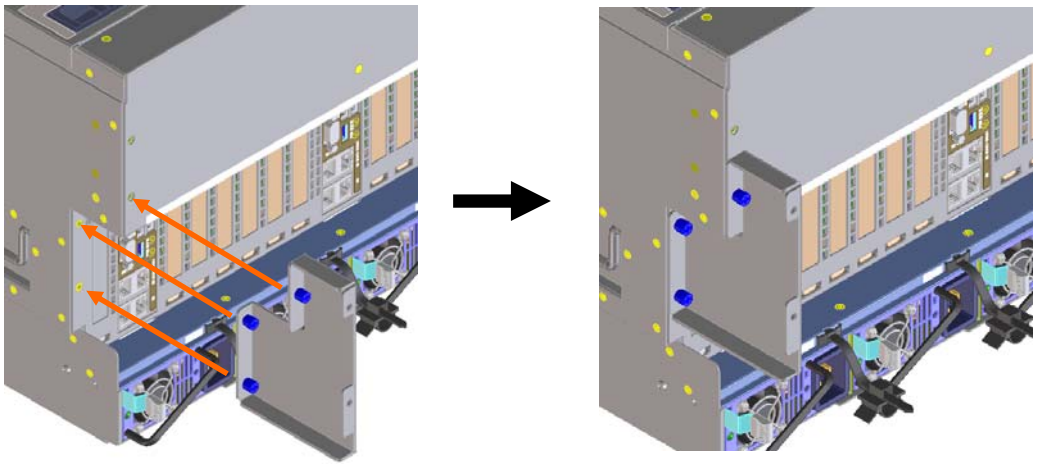
The following section describes how to attach the optional cable arm. Refer to the step 13 -20 er when using the standard cable arm.

21.Remove the server-attached plate attached to the cable arm to the server.
It is fixed by two screws at the positions circled in red.
Be careful not to lose the removed two screws as they will be used later.

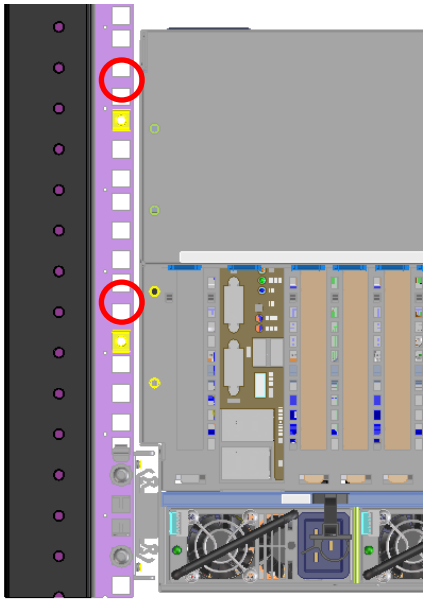


Length 8mm x 2

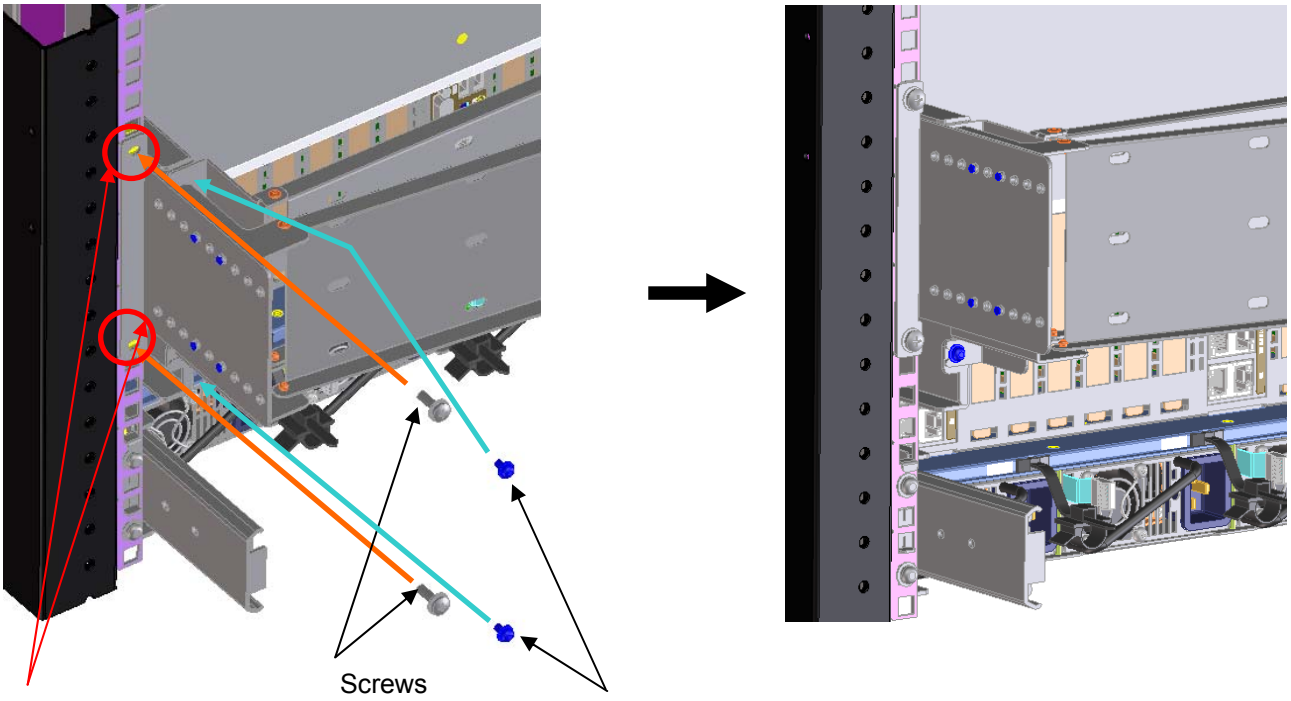
22.Attach the plate that was removed from the cable arm in step 13 to the rear of the server.
(Three positions for screwing)



23.Attach the cable arm to the slide rail assembly through square holes by using three screws. Attach the cable arm to the server-attached plate that was attached to the server by using the two screws removed in step 21.



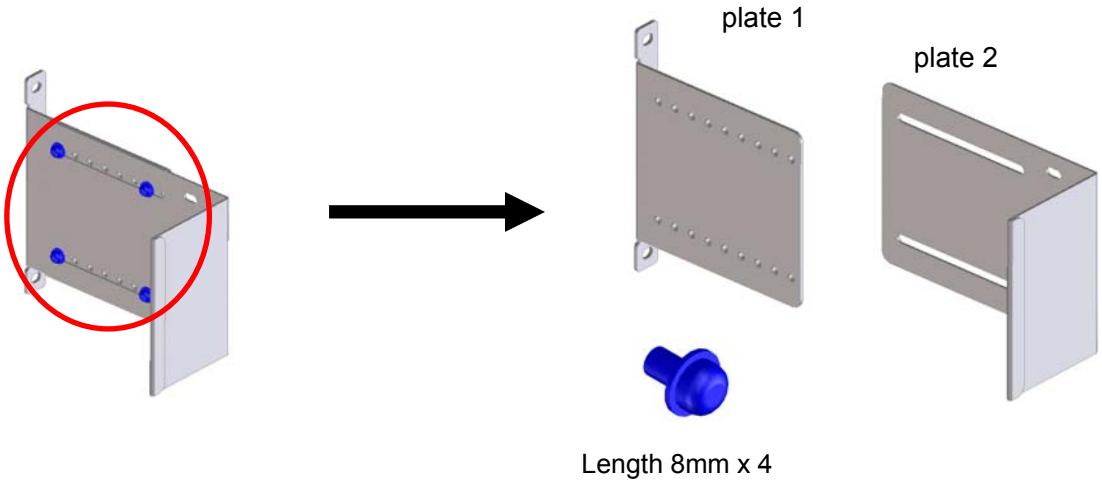
The place for brackets(rack nuts).
This example is for square holes.



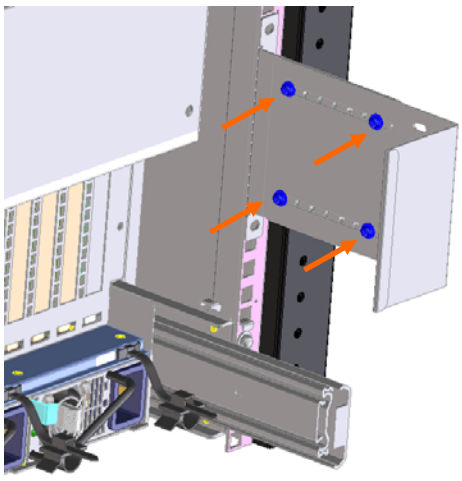
Rack nuts for square or circle holes

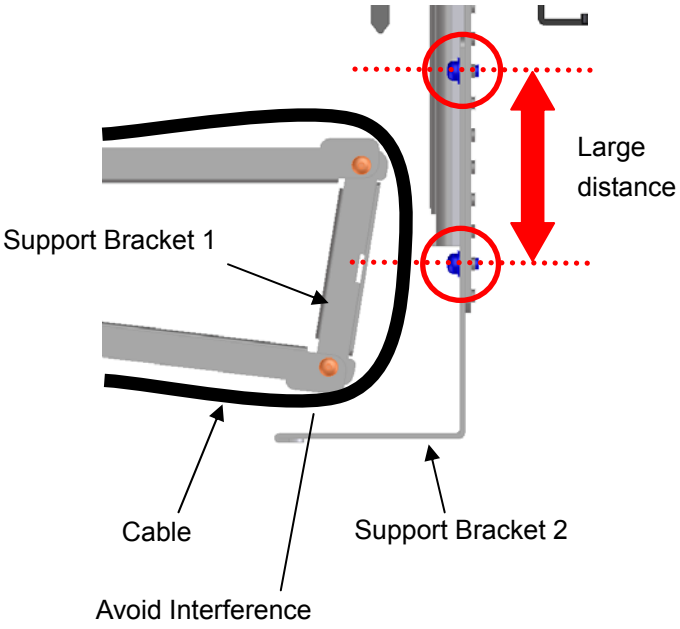
Screws removed from step 21

24.Remove dog-leg plates from the cable cover. The dog-leg plates are fixed by four screws in the depositions circled in red shown below.
Be careful not to lose the removed 4 screws as they will be used later.



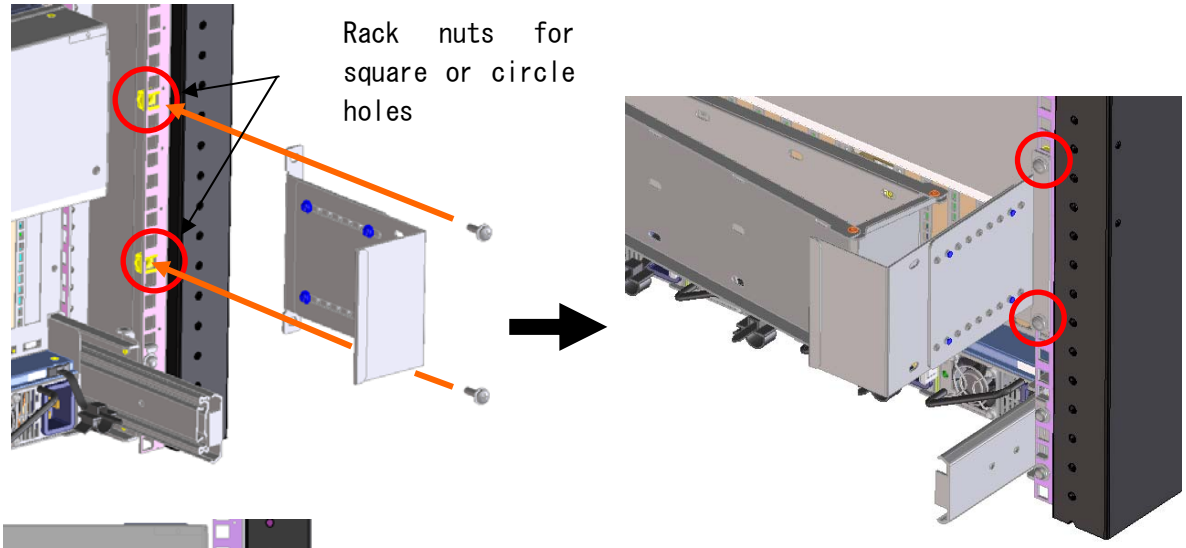
25.Attach the plate 1 to the plate 2 by using the four screws removed in step 24.
Attach the plate by adjusting to avoid interference of the cable arm with the cable cover and also to avoid interference of the cable with the cable cover when mounting the cable to the cable arm, as well as by having the large distance between screws in the forward and backward direction.

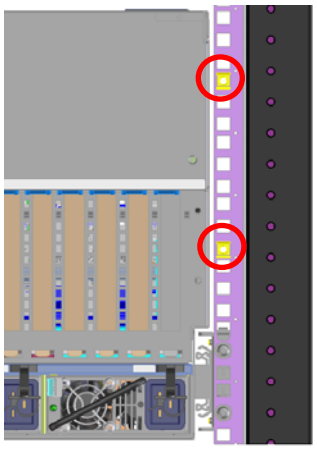




26. Attach the cable cover to the rack by using 2 screws.

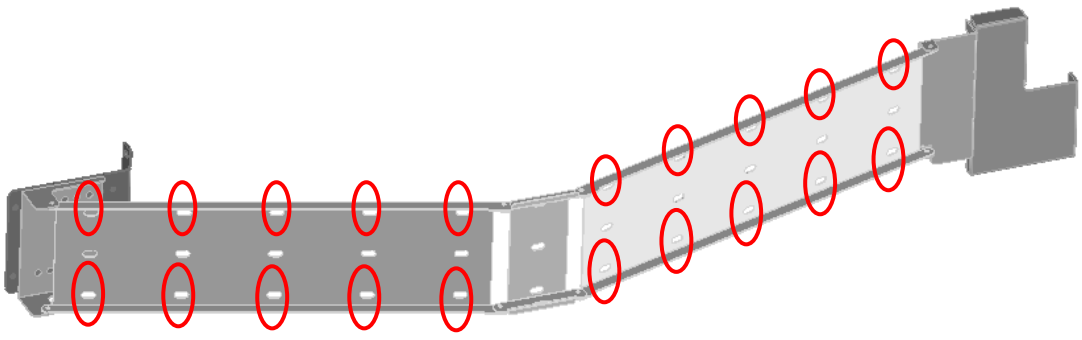
NOTE:
Loosen the 4 screws on the front of the server that were tightened in step 12 and move the server back and forth to check that the server can be pulled out from or inserted into the rack smoothly. Fix the rack again after checking it.





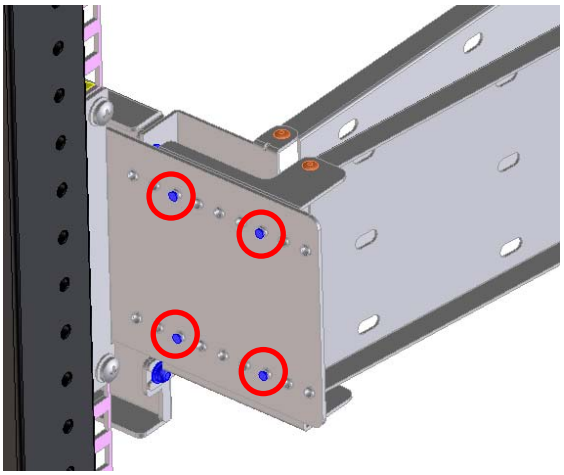
The place for brackets(rack nuts).
This example is for square holes.

27. Attach repeat ties to the cable arm.
There are 25 repeat ties provided.
Of them, 20 repeat ties are attached to 20 holes of the cable arm and used to fix the cable.
One of them is used to fix the cable arm to the cable cover so that the cable arm is in stable condition.

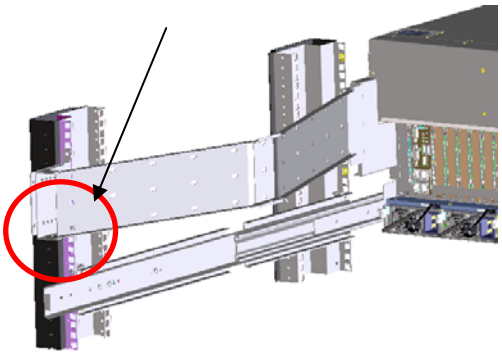


28. Adjust the support bracket corresponding to the rack length.

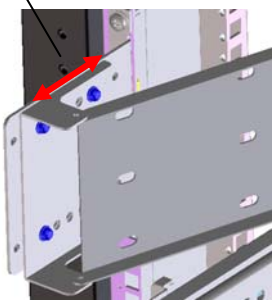
NOTE:
There are many holes on the support bracket so that it is adjustable to be fit to the rack.



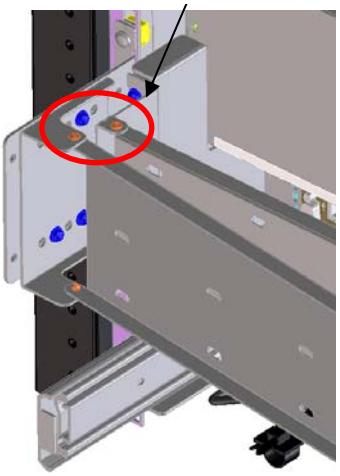
[1]Fix the arm at the place where the system can be pulled out from the rack completely.



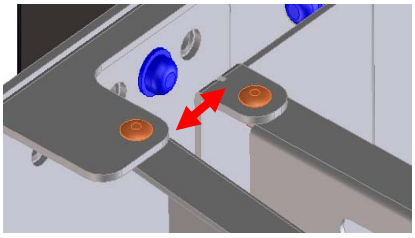
As far as possible



[2]make sure not to hit each other when the arm is closed.

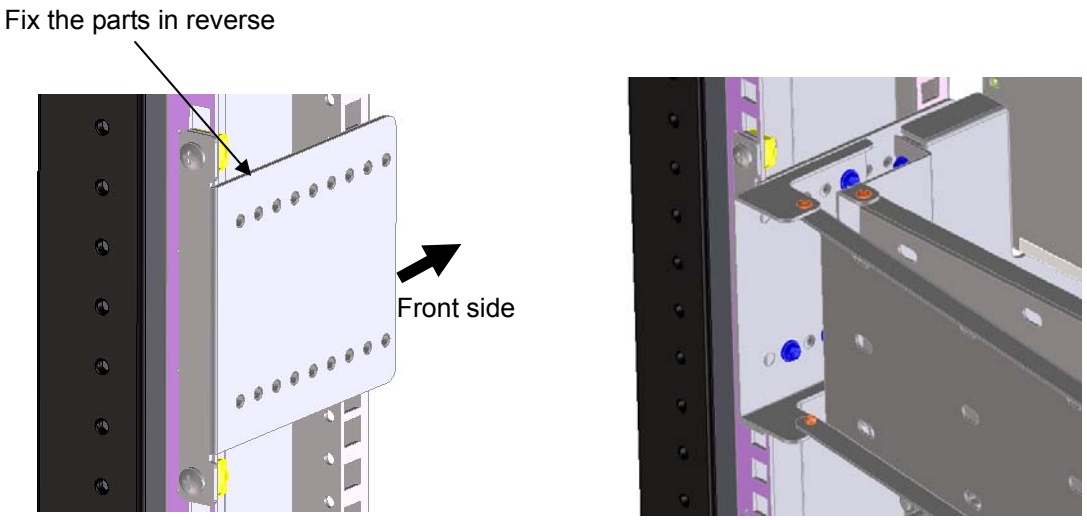


5 – 40mm depending on the rack size

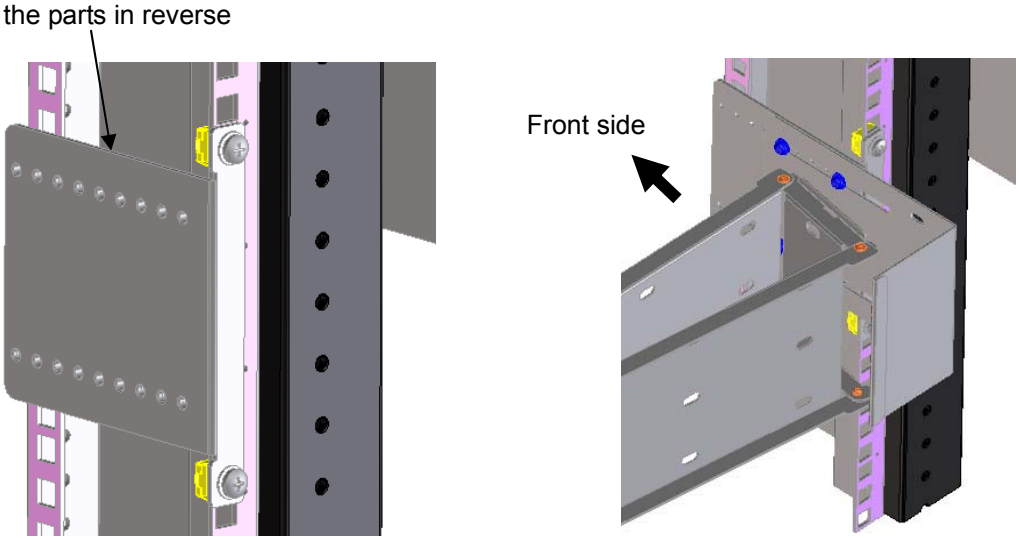


NOTE:
It is possible to mount the brackets in reverse so that it is fit to long length of rack.

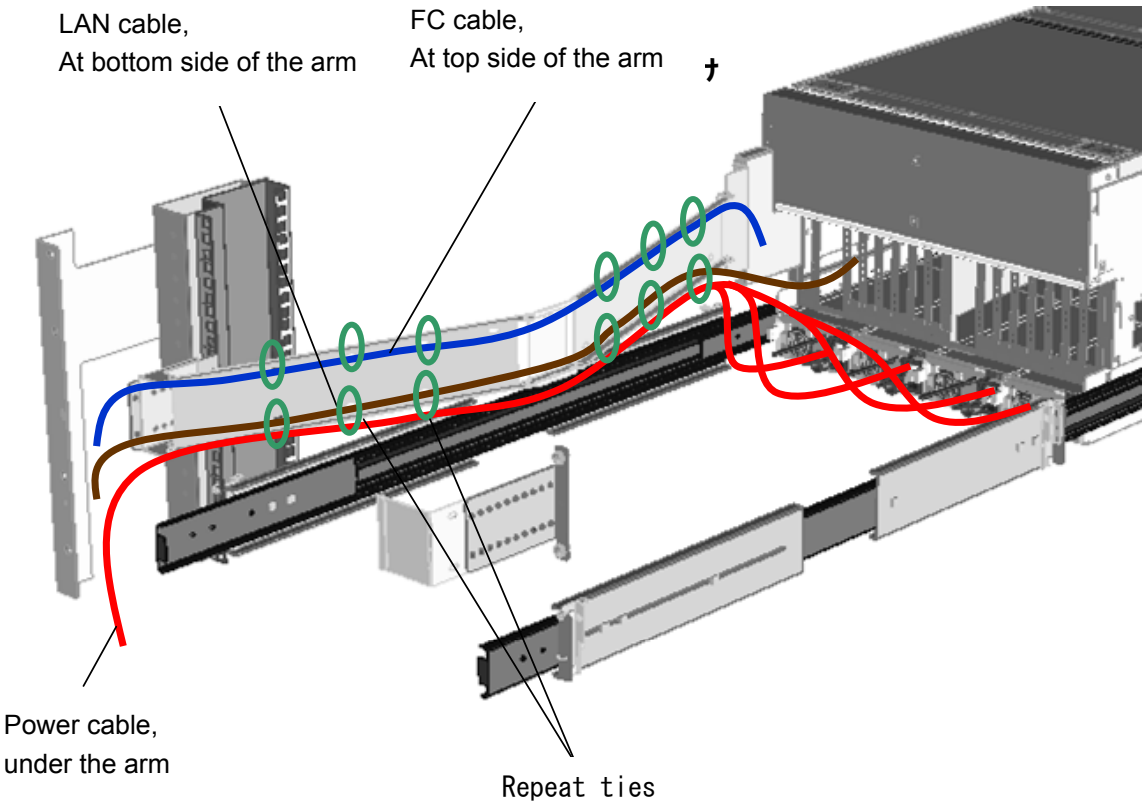
Support bracket 1 (Cable arm side)

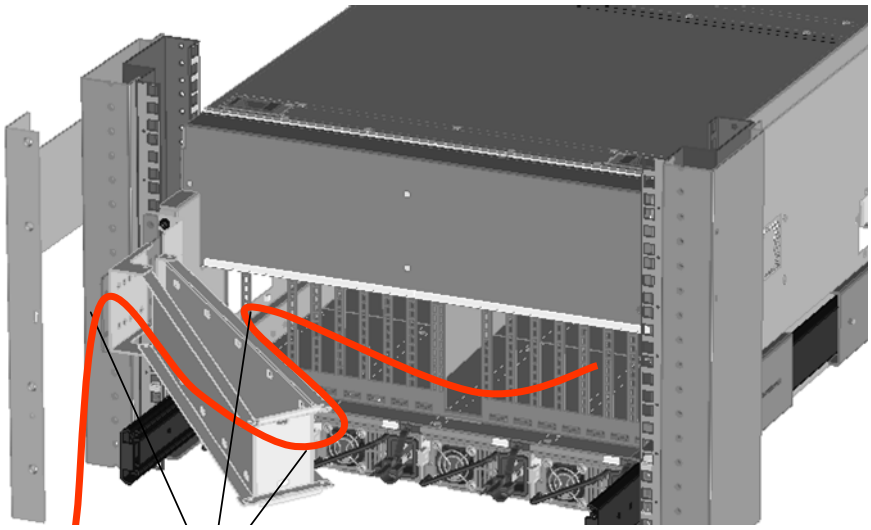


Support bracket 2 (Cable cover side)



This completes mounting the server to the rack.
When mounting cable with the bracket, refer the figures below.





Make sure not to have the cable stress at the corner.
If FC cable, don't bend with a radius which is smaller than ten times of the cable external diameter.

Unmounting Procedure

Ensure to use a lifter or carry with 4 or more persons when unmounting the server from the rack.

⚠ CAUTION



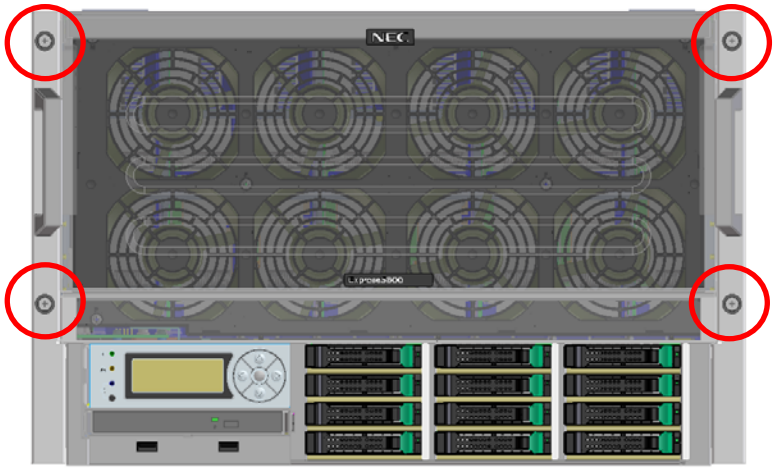
Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after page iii for details.

- Ensure to use a lifter to lift the server and support the bottom of the server firmly to install or relocate it. If there is no lifter, carrying the server by less than 4 persons may cause backache.
- Do not install the server in other than the location specified.
- Do not get your fingers caught.
- High temperature
- Do not unmount the server when the rack is unstable.
- Do not leave the multiple servers being pulled out from the rack.

1. Check that the power of the server is turned OFF before removing all power codes and interface cables connected to the server.

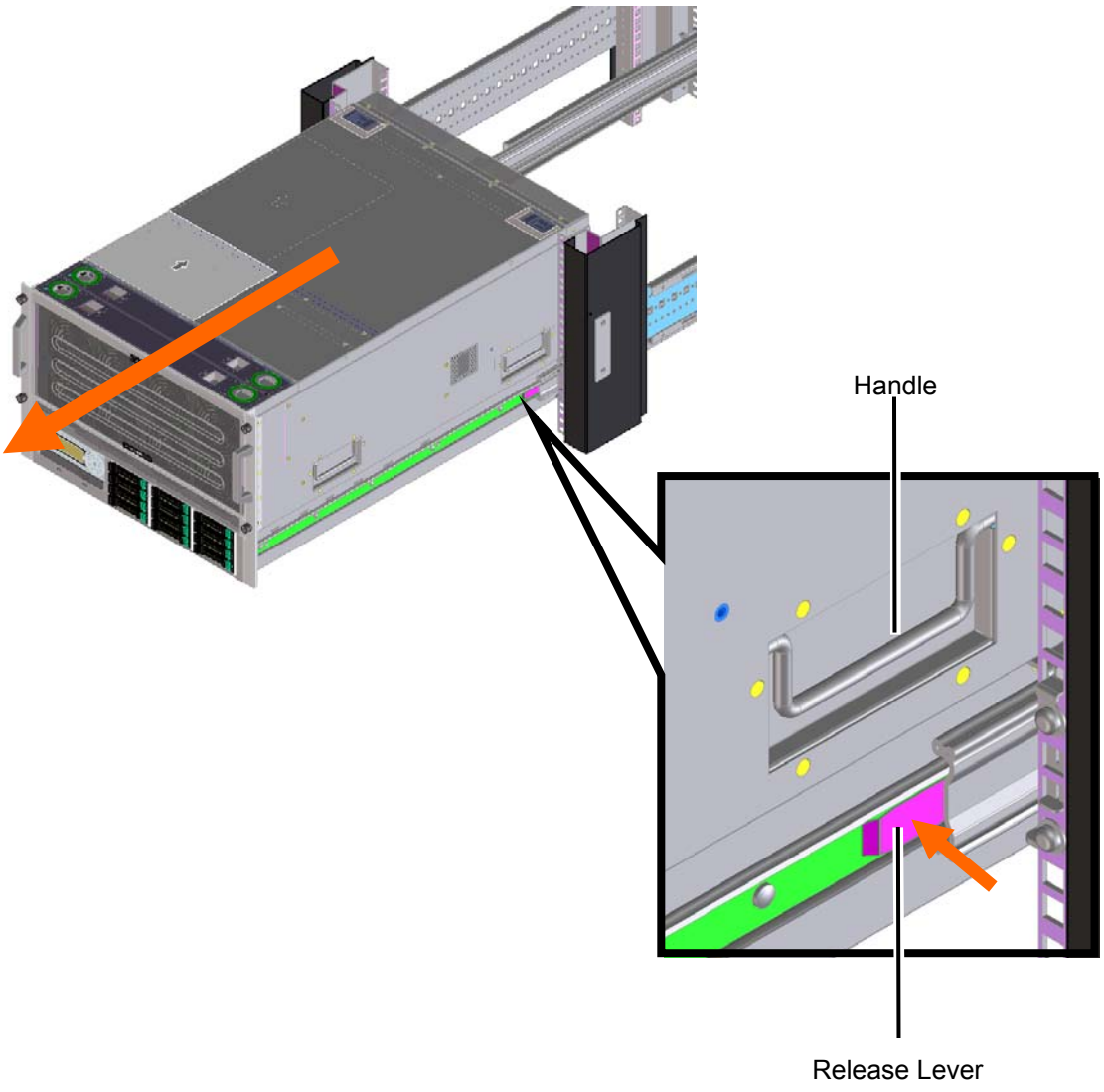
2. Install a tip-resistant stabilizer to the bottom front of the rack.

3. Lessen screws fixing the server located on each front side.



4. Hold the handle and pull out from the rack slowly and gently. It is latched when it clicks.

5. Remove from the rail slowly while unlocking by pushing the right and left release levers.



IMPORTANT:

- **To support the server, insert the lifter arm to the bottom of the server. Lift it slowly while supporting the server bottom and the handle on the side by multiple personnel (more than 5 personnel are recommended).**

⚠ CAUTION

Be careful not to catch your finger and not to be injured when pressing the release lever.

Refer to **"Mounting Procedure"** when removing the rack components as well.

Connection

Connect the server to peripherals.
Connectors that can connect to various peripherals are provided on the front and rear side the server. The following image shows the position of peripherals that can be connected to the server in normal state and their connectors. Connect peripherals before connecting the accompanying power code to the server and connect the power plug to PDU (outlet box).

WARNING



Observe the following instructions to use the server safely. There are risks of death or serious personal injury. Refer to descriptions after iii page for details.

- Do not hold the power plug with a wet hand.

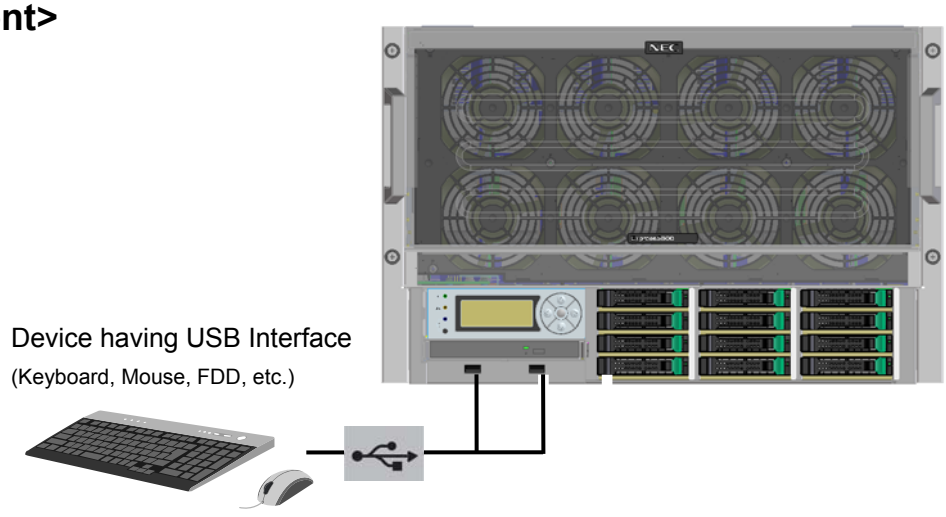
CAUTION



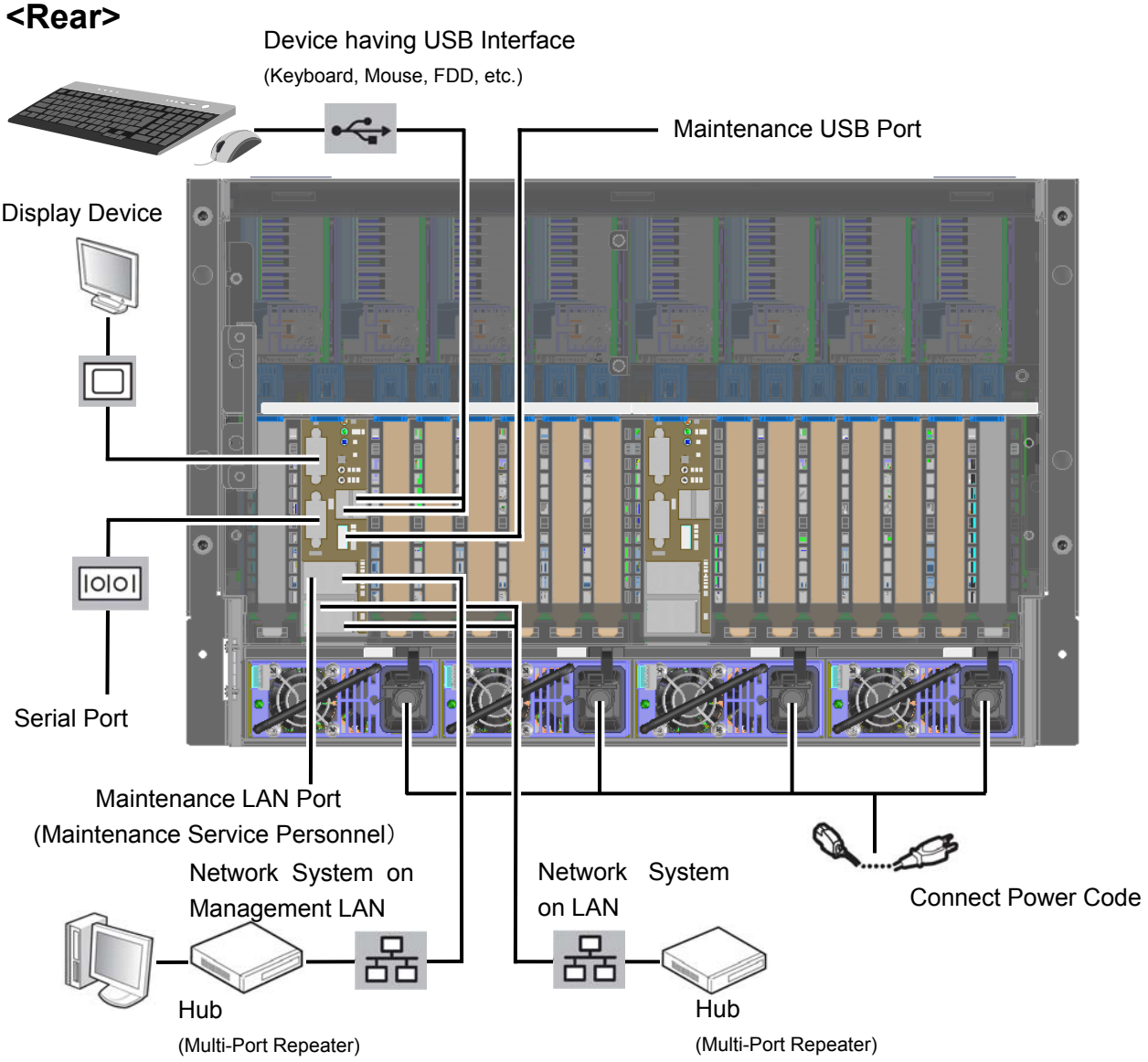
Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after iii page for details.

- Do not plug the power cord into a nonconforming outlet.
- Do not plug the cord insecurely.
- Do not use nonconforming power cords.
- Disconnect the power plug before mounting or unmounting interface cables.
- Do not use nonconforming interface cables.

<Front>



<Rear>



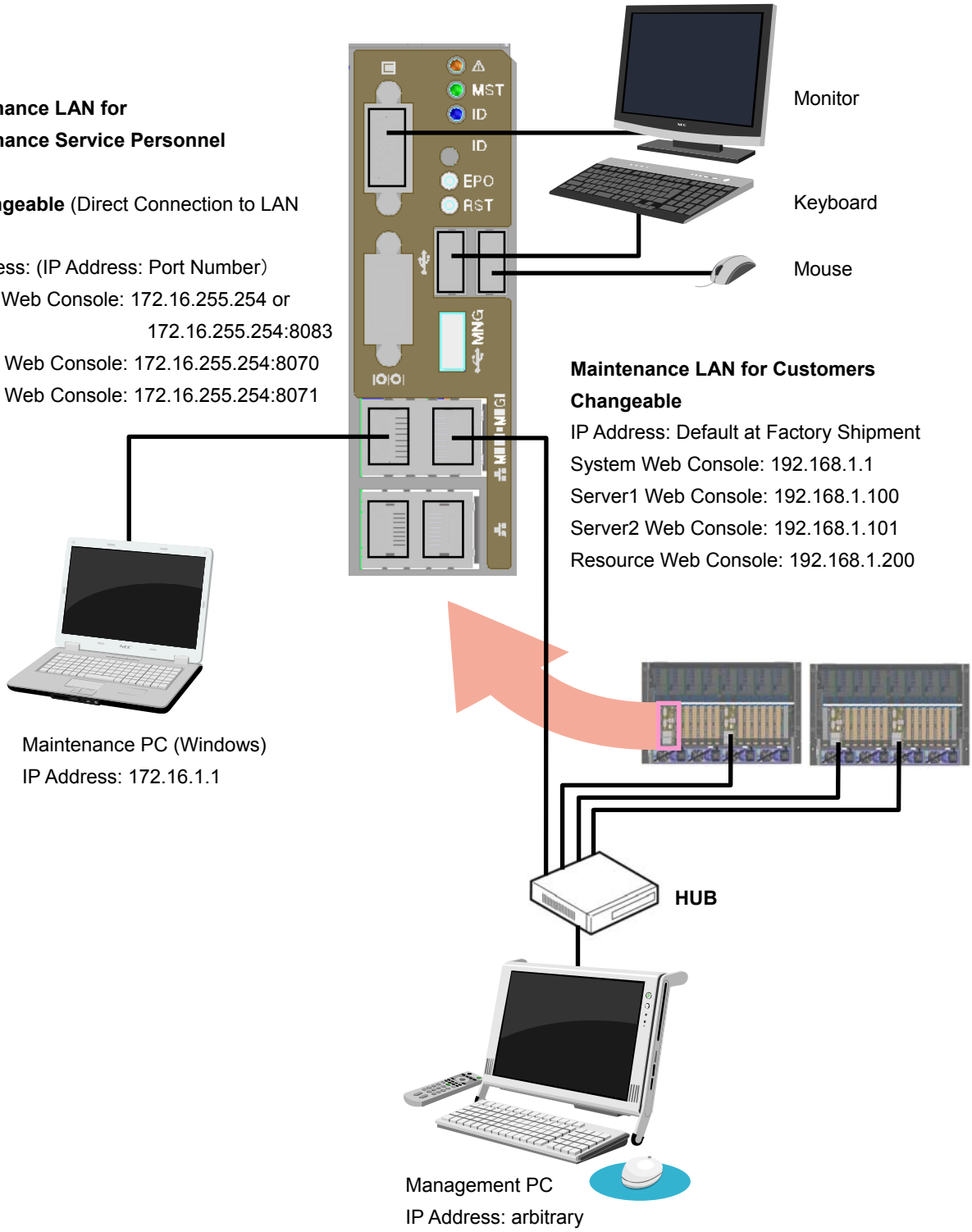
NOTE:
Check the cable to be connected.

IMPORTANT:

- **Connect after turning OFF the power of the server and peripherals to be connected. Connecting them while the power is turned ON causes a malfunction or failure (except for USB devices).**
- **When connecting peripherals and interface cables from a company other than NEC (third party), ask the distributer from which you purchased to confirm that these devices can be used in the server preliminarily. Some of devices from third parties cannot be used in the server.**
- **Form the cable to keep away from the door of the rack or guide rail on the side.**
- **Form the power code loosely so that the power code is not pulled off when the server is pulled out.**
- **Prevent the plug part of the power code from being pressed.**
- **For A1080a-D model, a display device, keyboard, and mouse are connected to the management module of each server.**

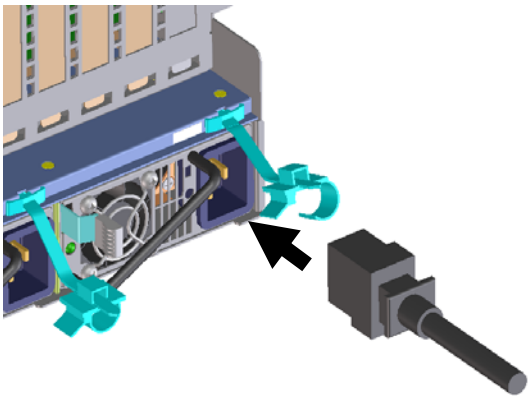
Web Console Connection

The following shows an example of Web Console connection.

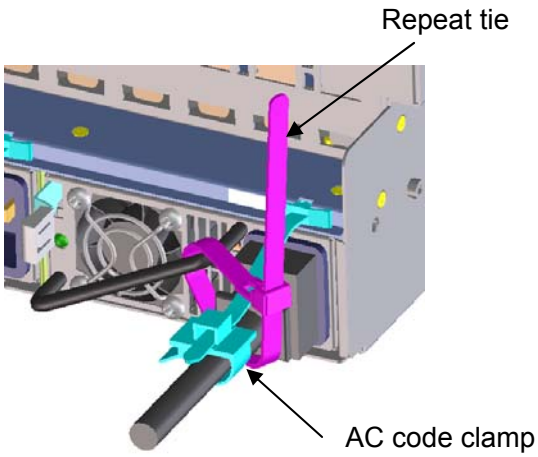


Power Code Connection

Insert the power code into AC inlet of the power supply unit.



Fix the power code by using the AC code clamp attached to the power supply unit and repeat tie after the power code is connected.



Refer to “Power Cable” of “Installation/Uninstallation Procedure” described in the chapter of “Parts Able to be Added/Replaced by Customers” for details.

IMPORTANT:
After the power code is connected, take at least 30 seconds interval before turning on AC power.

Connection to Uninterruptible Power Supply (UPS)

Connect the service outlet provided on UPS when connecting the power code of the server to the uninterruptible power supply (UPS). Refer to the instructions accompanied with UPS for details.

Relocation

Unmount the server from the rack and relocate it by following the procedure below.

WARNING



Observe the following instructions to use the server safely.
There are risks of death or serious personal injury.
Refer to descriptions after page iii for details.
- Do not disassemble, repair, or alter the server improperly.
- Do not remove the lithium battery.
- Disconnect the power plug when handling the server.

CAUTION



Observe the following instructions to use the server safely.
There are risks of fire, personal injury, or property damage.
Refer to descriptions after page iii for details.
- Ensure to use a lifter to lift the server and support the bottom of the server firmly to install or relocate it. If there is no lifter, carrying the server by less than 4 persons may cause backache.
- Do not install the server in other than the location specified.
- Do not mount the server to the rack when the rack is unstable.
- Do not mount or unmount interface cables while the power is ON.

1. Refer to **"Installation"** to unmount the server or rail assembly from the rack.

2. Relocate the server by placing it in the package box or bag that contained the server at the time of purchase to avoid impact or oscillating. Relocate it carefully when there is no package box or bag.

3. Refer to **"Installation"** to mount the server or rail assembly.

4. Refer to **"Connection"** to connect peripherals.

Basic Operation

This chapter describes basic operation of this sever.

Power-On and Booting Server

The following shows the flow of steps from power-on to OS boot.

Turn on the power of peripherals connected to the server. ····· (1)

↓

Turn the power on and start booting the server. ····· (2)

↓

POST ····· (3)

↓

BIOS ····· (4)

↓

OS Boot ····· (5)

● In general, the steps are performed automatically to the step (5) after step (2) is performed. Refer to **"BIOS Setup"** in this Guide to stop the flow in step (4).

NOTE:
Confirm that the power of PDU (outlet box) is turned on when the power code is connected to a power source controller such as the uninterruptible power supply (UPS).

The server diagnoses itself by executing Power On Self-Test (POST) while **"NEC"** logo is displayed. Refer to **"Checking by POST"** described below for details.

NOTE:
POST is discontinued and an error message is displayed when an error is found during POST. xxx

There are 4 methods to boot the server as shown below.

(1) Operate the navigation button of EXPRESSSCOPE® Monitor and perform the following procedure from Operation Menu (refer to "NEC EXPRESSSCOPE® Monitor ").

For A1080a-S Model/A1080a-E Model

- When booting Server 1

  Go to **[Main Menu]** -> **[All Servers Up/Down]** -> **[SVRs Power Up]** -> **[Execute]**

  or,

  Go to [Main Menu] -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 Power Up]** -> **[Execute]**.

For A1080a-D Model

- When booting both Serve 1 and Server 2

  Go to **[Main Menu]** -> **[All Servers Up/Down]** -> **[SVRs Power Up]** -> **[Execute]**.

- When booting Server 1

  Go to **[Main Menu]** -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 Power Up]** -> **[Execute].**

- When booting Server 2

  Go to **[Main Menu]** -> **[Server2]** -> **[SVR2 Control]** -> **[SVR2 Power Up]** -> **[Execute].**

(2) Perform the following procedure from Summary (sub menu) after connecting to Server Web Console (refer to "Server Web Console").

Click **"Power ON"** button.

(3) Use WOL.

When the computer is installed in a location inaccessible freely such as in a remote location or server farm, send special packets to the WOL target computer (network adaptor) so that the network adaptor of the WOL target computer receives the packet and the power can be turned on.

Refer to the instructions of your utility software for WOL details.

(4) Use SMASH-CLP

Refer to the chapter which describe SMASH-CLP in details.

IMPORTANT:

●Don't update and reboot BIOS/Management Firmware until the OS boot is finished after starting power on.

●When using A1080a-D, don't update and reboot BIOS/Managemnet Firmware until the OS boot is finished after starting power on even if the OS boot is being executed on the other server.

If OS boot is finished, then the "Server Health" on Web console/ Monitoring/Summary will be "OS running/EFI Manager Booted".

POST (Power On Self-Test)

POST (Power On Self-Test) is the self-diagnosis feature which runs automatically after the startup of Partition. If POST detects an error, the error is logged in Event Log of Partition remote console submenu.

POST Flow

The flow of operations executed by POST is sequentially described below:

IMPORTANT:
Depending on the system configuration, a message requesting key entry may appear on the display screen.

1. POST starts after the Partition is started to check hardware.

2. After a while, the "NEC" logo appears. Then, the RAID controller is initialized and the internal hard disk drives and configured virtual disks are detected.

3. Then, the message prompting you to launch WebBIOS. However, you can ignore this message. After several seconds, the BIOS displays the "NEC" logo again.

NOTE:
See chapter 2 “Hardware” _ “RAID System” for detailed information of WebBIOS.

4. The progress bar appears below the "NEC" logo, and the message prompting you to launch BIOS. However, you can ignore this message. After several seconds, the OS starts.

NOTE:
See chapter 2 “Hardware” _ “RAID System” for detailed information of BIOS.

Error during POST

An error message is displayed on the screen of the display device when an error is detected during POST.

Error Messages Shown on the Display

The following shows the error message list, the causes, and the troubleshooting.

Example of Display Format

ERROR: Type:2; Severity:80; Class:0; Subclass:5; Operation: 800B

List of Causes/Troubleshooting corresponding the Codes

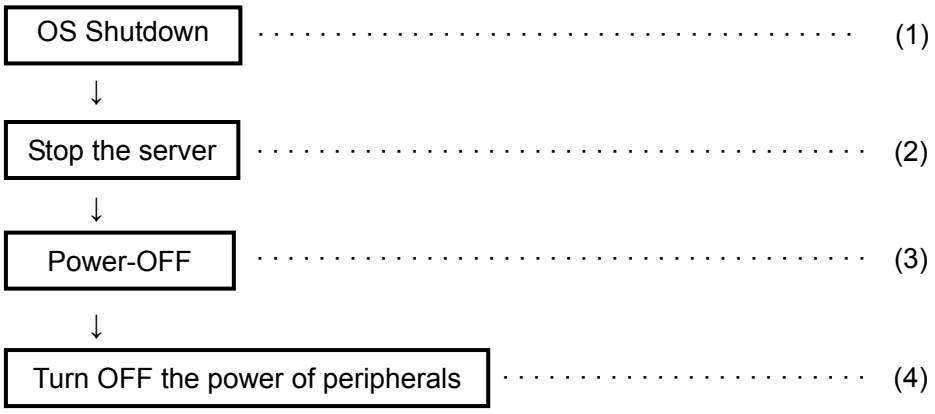
Type	Sever -ity	Class	Sub-class	Oper-ation	Cause	Troubleshooting
2	80	0	1	1006	Abnormal CPU temperature	Replace the removed CPU.
2	80	0	1	1004	CPU BIST error	Replace the removed CPU.
2	80	0	1	1003	Invalid CPU stepping	Replace the removed CPU.
2	80	0	4	1008	NVRAMdeletion ended abnormally	Replace IOM.
2	80	0	4	1009	Not detecting Memory	Check if memory is mounted.
2	80	0	5	800D	IOH Initialization ended abnormally	Replace the removed PMM.
2	80	0	5	800B	Abnormal RTC battery	Replace battery.
2	80	2	1	9	Detects insufficient resource at PCI device check	Check if PCI device is mounted.
2	80	3	2	1000	BIOS ended abnormally (DXE Core not detected)	Update BIOS or replace the removed CPU.
2	80	3	2	8000	BIOS ended abnormally (no PPI for DXE loading)	Update BIOS or replace the removed CPU.
2	80	3	3	8005	S3 Resume ended abnormally (PPI not detected)	Update BIOS or replace the removed CPU.
2	80	3	3	8009	Recovery Failure (PPI Undetected)	Update BIOS or replace the removed CPU.
2	80	3	3	800B	S3 Resume ended abnormally	Update BIOS or replace the removed CPU.
2	80	3	3	800A	Recovery Failure	Update BIOS or replace the removed CPU.
2	80	3	3	8008	S3 Resume ended	Update BIOS or replace the

					abnormally (variable acquisition failed)	removed CPU.
2	80	3	3	1000	Recovery Failed (Capsule Undetected)	Update BIOS or replace the removed CPU.
2	80	3	4	8001	BIOS ended abnormally (DXE Service not detected)	Update BIOS or replace the removed CPU.
2	80	3	5	1000	Invalid base address of Legacy Option ROM, or insufficient space required for Shadow	Update BIOS or replace the removed CPU.
2	80	3	0D	0	CPU Exception (division error)	Update BIOS or replace the removed CPU.
2	80	3	0D	1	CPU Exception (Debugger interrupt)	Update BIOS or replace the removed CPU.
2	80	3	0D	0A	Exceptional CPU (invalid TSS)	Update BIOS or replace the removed CPU.
2	80	3	0D	0B	CPU Exception (invalid segment)	Update BIOS or replace the removed CPU.
2	80	3	0D	0C	CPU Exception (stack exception)	Update BIOS or replace the removed CPU.
2	80	3	0D	0D	CPU Exception (general protection exception, access outside the segment range)	Update BIOS or replace the removed CPU.
2	80	3	0D	0E	CPU Exception (page fault)	Update BIOS or replace the removed CPU.
2	80	3	0F	8002	Memory not detected (PEI)	Check if memory is mounted.
2	40	0	1	100D	Microcode address not detected	Replace the removed CPU.
2	40	1	3	9	PCI device access ended abnormally	Replace a PCI device that can not be installed, if any.
2	40	1	3	6	PCI device access ended abnormally	Replace a PCI device that can not be installed, if any.
2	40	1	3	8	PCI device access ended abnormally	Replace a PCI device that can not be installed, if any.
2	40	3	0	000A	Invalid RTC date	Set date again.
2	40	3	3	1002	Detected timeout at timeout monitoring	Update BIOS or replace the removed CPU.
2	40	3	3	1003	Detected timeout at timeout monitoring	Update BIOS or replace the removed CPU.
2	40	3	11	8001	Reset means not detected at Runtime	Update BIOS or replace the removed CPU.
2	40	3	0F	8003	Memory installed twice on PEI	Update BIOS or replace the removed CPU.
2	40	3	0F	8001	Locating PEI Reset PPI failed	Update BIOS or replace the removed CPU.

Power-OFF and Stopping Server

Note that the procedure of turning the power OFF differs depending on the server boot status. Refer to the guide accompanied with UPS or the guide for application that controls UPS when the server is connected to UPS.

The following shows the flow of steps from OS shutdown to power-OFF.



- When step (1) is performed while OS is running, the steps (2) and (3) are performed automatically.
- When step (2) is performed while OS is not running and the server is running (BIOS menu, etc.), the step (3) is performed automatically.

There are 4 methods to turn the power OFF by shutting down OS and stopping the server as shown below.

(1) Shutting down from OS.

(2) Operate the navigation button of EXPRESSSCOPE® Monitor and perform the procedure from Operation Menu.

For A1080a-S Model/A1080a-E Model

- When shutting down OS of Server 1

  Go to **[Main Menu]** -> **[All Servers Up/Down]** -> **[SVRs OS Shutdown]** -> **[Execute]**

  or,

  Go to **[Main Menu]** -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 OS Shutdown]** -> **[Execute].**

For A1080a-D Model

● When shutting down OS of both Serve 1 and Server 2

Go to **[Main Menu]** -> **[All Servers Up/Down]** -> **[SVRs OS Shutdown]** -> **[Execute]**.

● When shutting down OS of Server 1

Go to **[Main Menu]** -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 OS Shutdown]** -> **[Execute].**

● When shutting down OS of Server 2

Go to **[Main Menu]** -> **[Server2]** -> **[SVR2 Control]** -> **[SVR2 OS Shutdown]** -> **[Execute].**

IMPORTANT:
Shutdown may not be executed depending on state on the OS side. In this case, shut down OS by performing operations from OS.

IMPORTANT:
Don't shut down OS until the OS boot is finished after starting power on. If OS boot is finished, then the "Server Operating State" on EXPRESSSCOPE® Monitor/Server Menu/ View Information Screen will be "OS running/EFI Manager Booted".

(3) Perform the following procedure from Summary (sub menu) after connecting to Web Console.

Click "Soft-Shutdown".

IMPORTANT:
Shutdown may not be executed depending on state on the OS side. In this case, shut down OS by performing operations from OS.

(4) Use SMASH-CLP

Refer to the chapter which describe SMASH-CLP in details.

IMPORTANT:
●Don't update and reboot BIOS/Management Firmware until the power off is finished after starting OS shutdown.

●When using A1080a-D, don't update and reboot BIOS/Managemnet Firmware until the power off is finished after starting OS shutdown even if the power off is being executed on the other server.

If the power off is finished, then the "Server Health" on Web console/Monitoring/Summary will be "Stopped".

There are 4 methods to turn the power OFF forcibly as shown below.

IMPORTANT:
The shutdown process is not performed by this procedure.
Perform this procedure after confirming that OS is not running.

(1) Operate the navigation button of EXPRESSSCOPE® Monitor and perform the following procedure from Operation Menu.

For A1080a-S Model/A1080a-E Model

● Execute the following to turn off the power of Server 1.

Go to **[Main Menu]** -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 For Maint]** -> **[SVR1 Power Down]** -> **[Execute]**

For A1080a-D Model

● Execute the following to turn off the power of Server 1.

Go to **[Main Menu]** -> **[Server1]** -> **[SVR1 Control]** -> **[SVR1 For Maint]** -> **[SVR1 Power Down]** -> **[Execute]**

● Execute the following to turn off the power of Server 2.

Go to **[Main Menu]** -> **[Server2]** -> **[SVR2 Control]** -> **[SVR2 For Maint]** -> **[SVR2Power Down]** -> **[Execute]**

IMPORTANT:
For A1080a-D model, the power of all servers is turned OFF by turning OFF the power of both Server 1 and Server 2.
The power such as common parts such as the power supply is not turned OFF when either of servers is operating.

(2) Perform the following procedure from Summary (sub menu) after connecting to Server Web Console.

Click "Power OFF immediate" button.

IMPORTANT:
The shutdown process and server stop process are not performed by this procedure. Perform this procedure when the shutdown process or server stop process cannot be performed due to the failure of the server or when only the power of the server is turned ON.

(3) Press the Forcible Shutdown button on the management module for at least five seconds.

IMPORTANT:
- **For A1080a-D model, DC is turned off in both servers by pressing the Forcible Shutdown button of either one of Server 1 and Server 2.**
- **To reboot the server after turning DC off forcibly with this DC OFF button, perform it after turning AC OFF and then ON.**

(4) Use SMASH-CLP

Refer to the chapter which describe SMASH-CLP in details.

Checking Server Position (ID Switch)

“ID LED” is provided on the front and rear side of a server to recognize which server is to be maintained when multiple servers are mounted to a rack.

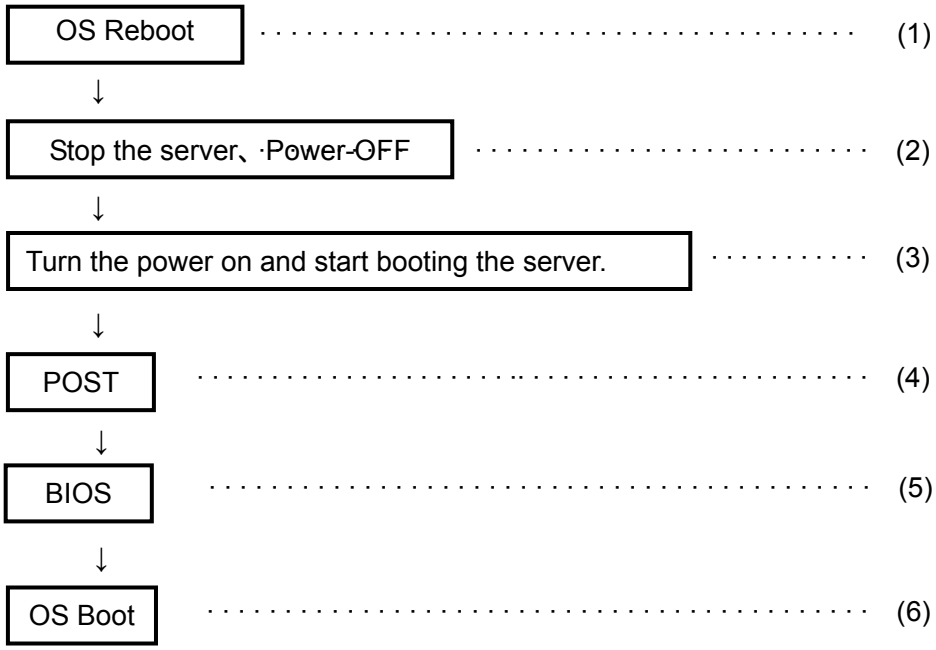
ID LED lights by pressing the ID button of EXPRESSSCOPE® Monitor on the front of the server or management module on the rear of the server. Pressing again turns the LED off.

It is also possible to light/turn off the LED from Hardware Locater in the Monitoring menu of System Web Console, Server Web Console, or Resource Web Console.

It may be necessary to remove the power or interface cable of the server operating properly as the maintenance work from the rear of the rack is usually performed in a dark and narrow space. It is recommended to perform the work after checking the position of the server to be maintained by using the ID switch.

OS Reboot

The following shows the flow of steps from OS reboot.



● In general, the steps are performed automatically to the step (1) after step (6) is performed. Refer to **"BIOS Setup"** in this Guide to stop the flow in step (5).

Execute reboot command on OS.
Then OS will be rebooted automatically unless the setting to stop at BIOS is enable.

*** Refer to "Power-On and booting server" in this document for details on POST.**

DVD Drive

Your server is provided with the DVD drive on its front.

CAUTION

Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after page iii for details.

● Do not leave the tray of optical drive device ejected.

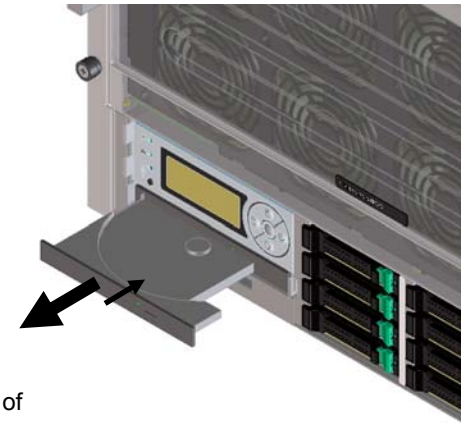
Setting/Removing the CD/DVD-ROM

Set a disk on the DVD drive in the following procedure.

1. Confirm that the power of the server is on before setting the CD/DVD-ROM on the DVD drive.

2. Press the media tray eject button on the front of the DVD drive.

   The tray comes out.

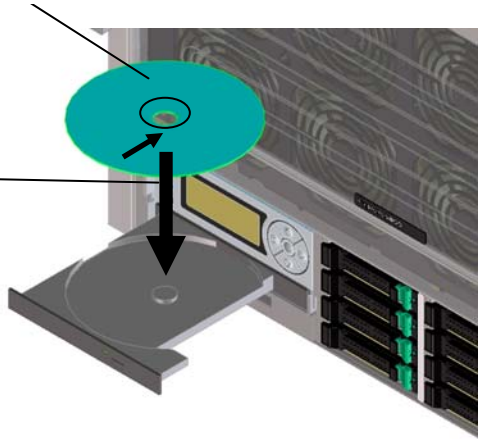


3. Hold the CD/DVD-ROM with its signal side Facing the tray.

Press this part of a disk medium.

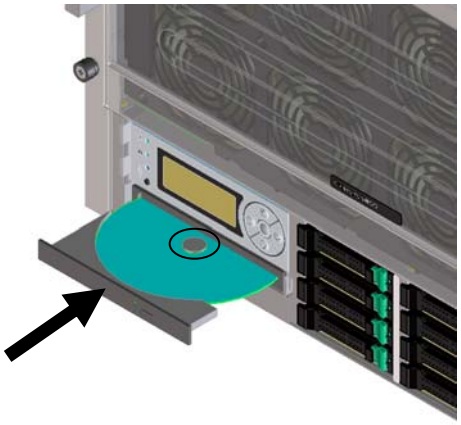
4. Press the disk with fingers to make the hole of the disk fit to the rotor at the center of the tray.

Drive Shaft



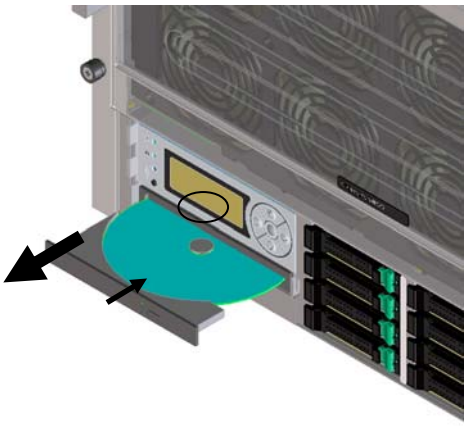
5. Push the front of the tray lightly to retract it into the drive.

IMPORTANT:
If a noisy sound in driving the DVD drive occurs after setting a CD/DVD-ROM, set it again correctly.

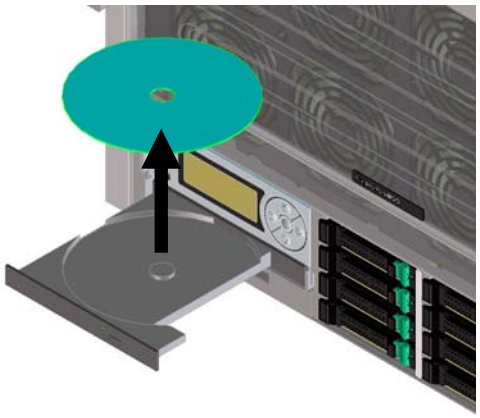


To take ouot the media from the DVD drive, press the tray button in the similar way in setting the CD/DVD-ROM to make the tray go out.

If access lump is lit in green, the CD/DVD-ROM is being accessed. Comfirm that the access lump is not lit before pressing the tray eject button.



While pushing the rotor at the center of the tray, hold the end of the disk lightly and take the disk out from the tray. After taking the CD/DVD-ROM, return the tray into the drive.

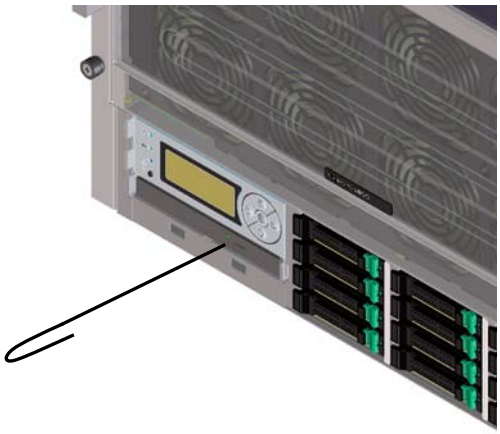


When you fail to eject:

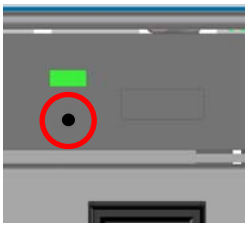
When you fail to eject the tray with the tray eject button and cannot take out the CD/DVD-ROM from the server, follow the procedure below.

1. Press the POWER switch to power off the server.

2. Insert a metal pin of approximately 1.2mm In dismeter and 100mm in length(a strainghtend large paper clip will make a substitute) into the emergency hole on the lower front of the DVD drives and gently push it in the tray is ejected.



IMPORTANT:
- **Do not use a toothpick or plastic stick that is easy to break.**
- **If the above procedure does not let you take out the CD/DVD-ROM, contact your service representative.**



3. Hold the tray and pull it out.

4. Take out the CD/DVD-ROM.

5. Push the tray back into the drive.

Aboout use of the CD/DVD

Keep the following notes in mind to use the CD/DVD-ROM for the server:

●For the disk which does not conform to the CD/DVD standard, the playback of such a disk with the DVD drive is not guaranteed.

●Do not drop the CD/DVD-ROM.

●Do not place anything on the CD/DVD-ROM or bend the CD/DVD-ROM.

●Do not attach any label onto the CD/DVD-ROM.

●Do not touch the signal side (nothing is printed on this side) with your hand.

●Place the CD/DVD-ROM with its printed side upward and gently put it on the tray.

●Do not scratch the CD/DVD-ROM or write anything directly on it with a pencil or ball-point pen.

●Keep the CD/DVD-ROM away from cigarette smoke.

●Do not leave the CD/DVD-ROM in a high-temperature place (e.g., place exposed to direct sunlight or close to a heater).

●When dust or fingerprints are attached on the CD/DVD-ROM, wipe the CD/DVD-ROM from its center to edge with a dry soft cloth slowly and gently.

●Use the CD cleaner to clean the CD/DVD-ROM. Do not use record spray/cleaner, benzene, or thinner.

●Keep the CD/DVD-ROM in a CD/DVD-ROM case when not in use.

Upgrading Your Server

This chapter describes internal optional devices available for the server, procedures for install or removing such optional devices, and notes on using them.

IMPORTANT:

- **Optional devices described in this chapter may be installed or removed by any user. However, NEC does not assume any liability for damage to optional devices or the server or malfunctions of the server resulted from installation by the user. NEC recommends you ask your service representative for installing or removing any optional devices.**
- **Make sure to use only optional devices and cables authorized by NEC. Repair of the server due to malfunctions, failures, or damage resulted from installing inappropriate devices or cables will be charged.**
- **Make sure to uodate the system when you made any changes to the hardware configuration.**

IMPORTANT:

- **It is required to set the maintenance mode to prevent Alert Report during the operation when mounting optional products/replacing parts. Clear the maintenance mode setting after the operations. The maintenance mode can be set and cleared from EXPRESSSCOPE Monitor or Web Console.**
- **Ensure to clear the maintenance mode after the operations. In case it is not cleared, this setting is cleared automatically 180 minutes after the setting.**
  However, report is sustained if you are under contract for the maintenance of Report Service. Note that a failure occurred before the setting is cleared automatically is not reported if the maintenance mode is not cleared after the operation.

Safty Notes

Observe the following notes to install or remove optional devices safely and properly.

⚠ WARNING



Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. Refer to descriptions after page iii for details.

- ●Do not disassemble, repair, or alter the server.
- ●Do not look into the DVD drive.
- ●Do not remove the lithium battery.

⚠ CAUTION



Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to descriptions after page iii for details.

- ●Pay attention to high temperature.
- ●Make sure to complete installation.
- ●Do not install the server on the rack leaving the cover removed.
- ●Do not pinch your fingers with mechanical component.

Anti-Atatic Measures

The server contains electronic components sensitive to static electricity. Avoid failures caused by static electricity when installing or removing any optional devices.

● **Wear a wrist strap (an arm belt or anti-static glove).**

Wear a wrist strap on your wrist. If no wrist strap is available, touch an unpainted metal part of the cabinet before touching a component to discharge static electricity from your body.
Touch a metal part regularly when working with components to discharge static electricity.

● **Select a suitable work space.**

- ― Work with the server on the anti-static or concrete floor.
- ― When you work with the server on a carpet where static electricity is likely to be generated, make sure take anti-static measures beforehand.

● **Cloth**

- ― Do not wear a wool or synthetic cloth to work with the server.
- ― Wear anti-static shoes to work with the server.
- ― Take off any jewels (a ring, bracelet, or wrist watch) before working with the server.

● **Handling of components**

- ― Keep any component in an anti-static bag until you actually install it to the server.
- ― Hold a component by its edge to avoid touching any terminals or components.
- ― To store or carry any component, place it in an anti-static bag.

-

Parts Able to be Added/Replaced by Customers

The server provides parts that can be added/replaced under customer installation environment. The replaceable parts are grouped into 2 types of FRU and CRU.

FRU is an abbreviation of Field Replacement Unit. FRUs include all parts (modules/units) replaceable when a failure occurs and are replaced by a maintenance service personnel.

Of these FRUs, there are CRUs that can be replaced/added by customers.

CRU is an abbreviation of Customer Replacement Unit. CRUs include parts (modules/units/cables) that can be replaced at failure occurrence or added by customers.

The following shows the list of CRUs. There are 5 CRUs in the server as shown in the table below.

IMPORTANT:
These CRUs can be replaced/added by customers. However, it is also possible to ask the maintenance service company for replacement.

・CRU List

No.	Abbreviation	Name	Name used in this Guide	
1	HDD	Hard Disk Drive	Hard Disk	
2	PSU	Power Supply Unit	Power Supply Unit	
3	DVD	Digital Versatile Disk	DVD Drive	
4	FAN	FAN Module	Cooling Fan	*1
5	—	Power Cable	Power Cable	

*1: The server needs to be pulled out from the rack to mount/unmount the cooling fan.

The abbreviations in the above table are used when suspicious failure indications are displayed on EXPRESSSCOPE® Monitor and Web Console at failure occurrence.
A FRU can not be replaced by customers when its displayed abbreviation is not included in the above table. In this case, contact the maintenance service company and request for replacement.

Refer to **[System Diagnostics]** -> **[Specifying Failure of Power Code]** in **"Operation and Maintenance,"** as suspicious failures of the power cable is not indicated by BID (Build-In Diagnostic)*.

* BID is an abbreviation of Built-in Diagnostics and is the failure analysis function installed in the server.

The following table shows replacement conditions and the accompanying tasks.

Replacement conditions and required additional tasks	CRU is an abbreviation of (Customer Replacement Unit)				
	HDD	**PSU**	**DVD**	**FAN**	**Power Cable**
Online Replacement	Possible *1	Possible *2	Not possible	Possible	Possible *2
Offline Replacement	Possible	Possible	Possible	Possible	Possible
Pulling out or inserting the server from/into the rack	Not Required	Not Required	Not Required	Required	Not Required

*1: When RAID system is configured (other than RAID 0)
*2: When power redundant configuration is built

The following describes how to install/uninstall CRUs.

The diagnostic test is required to check operations following installation when CRUs are installed/uninstalled. Refer to **"System Diagnostics"** in **"Operation and Maintenance"** for how to perform the diagnostic test.Note that the test is executable only when the system is offline.

Preparation for Mounting/Unmounting

Prepare for mounting/unmounting parts by following the procedure below.

IMPORTANT:
It is required to turn off the power of the server when adding/replacing parts, except for online replacement.

1. Set to the maintenance mode (refer to “Set Maint Mode”).
2. Shut down OS of the server to be replaced and turn OFF the power.

Step 2 is omitted in the following case.

· In **A1080a-S /A1080a-D/A1080a-E**, the operation in step 2 is not performed when replacing a hard disk configured in RAID other than RAID0, a fan module, or a power supply unit/power cable in the power redundant configuration.

IMPORTANT:
A hard disk configured in RAID other than RAID0, a fan module, or a power supply unit/power cable in the power redundant configuration can be replaced online.

IMPORTANT:
In A1080a-D model, turn OFF the DC power of both servers when replacing DVD drive device.
In all models, turn OFF the DC power of the server when replacing a hard disk configuring RAID0

3. Secure enough space on the front, rear, right, and left side, and top of the server.

Confirmation during replacement or installation

Confirm following items when you remove a part or add a optional unit.

- **Install the removed parts to original place in the server.**

  Install the parts/cables which are removed while removing or adding the other part/cable to the original place in the server accurately. Missing any parts/cables or installing the parts/cable incompletely may result in some malfunction.

- **Ensure not to leave any parts or screws inside the server.**

  If the DC power is turned on while a conductive part such as screw is left on the board or the terminal of cable in the server, some malfunction or failure may occur.

- **Check if any cables do not prevent the air flow from cooling the system**

  If any cables are installed improperly and prevent the air flow, it reduces the cooling effect in the server, resulting in some malfunction.

- **Confirm that the replacement/installation is done properly using tools**

  Using tools such as System Diagonosis Utility or BIOS Setup Utility, confirm that the part/device is replaced/installed properly. Please refer to the replacingt/installing operation of each part/device for detail

- **Clear the maintenance mode setting after the operation.**

Installation/Uninstallation Procedure

Install/Uninstall parts by following the procedure below.

Hard Disk

There are 12 slots provided in a 2.5-inch disk bay located on the front of the server.
A 2.5-inch hard disk drive can be installed in these 12 slots.

A hard disk drive installed to a dedicated drive carrier can be purchased. Install it to the server with the drive carrier being mounted to.

Use a hard disk drive of the same NEC model number for adding or replacing.

IMPORTANT:
- **Only use a hard disk drive that is authorized and specified by NEC. If a hard disk drives, etc. from third parties are installed, not only the hard disk drive, but also the server itself may fail.**

A dummy tray is installed in an empty slot of the 2.5-inch disk bay. This is to improve the cooling effect of inside the server. Install a dummy tray in a slot in which a hard disk drive is not installed.

IMPORTANT:
Use a dedicated dummy tray to the server.

Installation

Install a hard disk drive by following the procedure below. Install in other slots with the same procedure.

NOTE:
There is no need to unmount the server from the rack to install/uninstall a hard disk drive.
In the RAID system such as RAID1, 5, 6, 10, and 50, replacement can be performed even when the power of the server is ON.

IMPORTANT:
Use the same NEC model number for had disk drives configuring the same disk array when the RAID system in configured.

1. Refer to “Preparation for Mounting/Unmounting” for preparation.

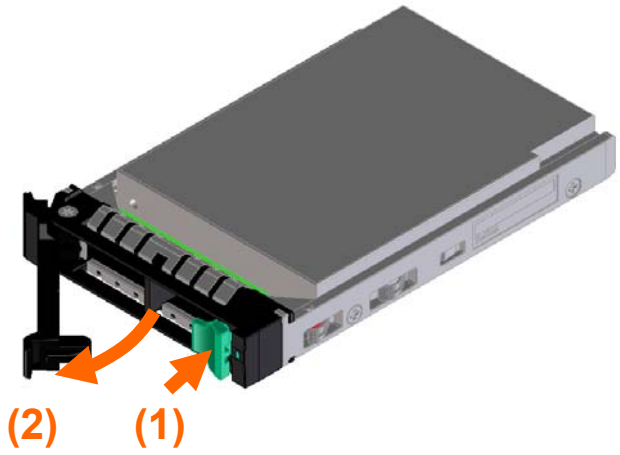
2. Check slots to install a hard disk drive.

NOTE:Note that location numbers are assigned to hard disk drives starting from number 0. Refer to “RAID System Configuration/Before using WebBIOS/*Slot numbers and their indications on utility software*”

3. Remove a dummy tray to add a hard disk drive.
   For replacement, remove the hard disk drive to be replaced.

IMPORTANT:
Keep the dummy tray removed for addition in a safe place.

4. Unlock the drive carrier of a newly installed hard disk and pull out the handle.



5. Hold the hard disk drive and handle firmly and insert it into the slot.

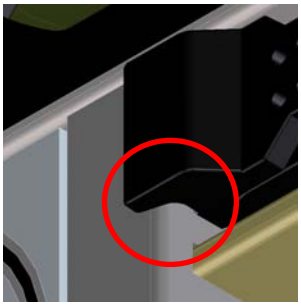
IMPORTANT:
- **Push it into the slot until the handle hook touches the frame.**
- **Hold the hard disk drive firmly and carefully to avoid dropping or subjecting to interference or oscillation.**
- **Push the hard disk drive into the slot horizontally and slowly by avoiding oscillation to the hard disk drive.**



6. Close the handle slowly. It clicks after it is locked.

IMPORTANT:
Be careful not to catch your finger between the handle and tray.

NOTE:
Confirm that the handle hook is hooked to the frame.



7. Refer to **"System Diagnostics"** in **Operation and Maintenance** to perform the diagnostic test when it is replaced offline (power-off).

8. Release the maintenance mode set in step 1.

Uninstallation

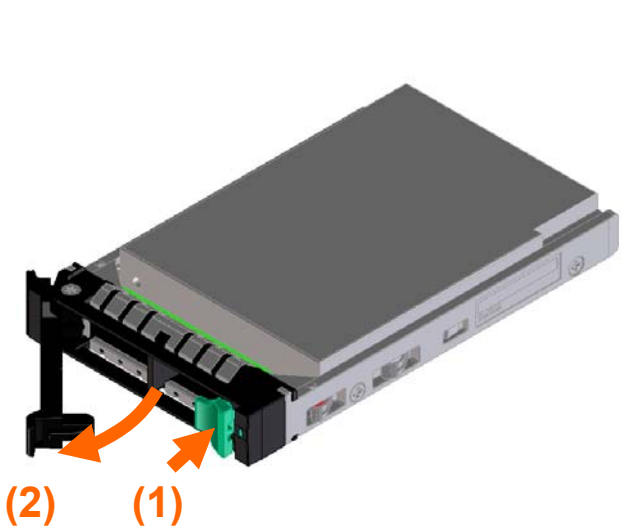
NOTE:
Confirm that the DISK Error LED of the hard disk drive is lighting in amber preliminarily when removing the disk due to hard disk drive failure.

IMPORTANT:
Online replacement can be performed when RAID system is configured (other than RAID0). Refer to 2 pages ahead for the description.

Uninstall the hard disk drive by following the procedure below. Install a dummy tray in an empty slot when using the server with the hard disk drive uninstalled.

1. Refer to“Preparation for Mounting/Unmounting” for preparation.

2. Unlock the hard disk and open the handle after checking the hard disk to be uninstalled





In this image, HDD Slot 3/6/9 is not mounted so that you can see the state in which HDD Slot1 handle is opened.

3. Hold the hard disk drive and the handle firmly to uninstall it.



IMPORTANT:
Uninstall the hard disk drive from the slot horizontally and slowly so as not to cause interference on the hard disk drive.

4. Refer to **"Installation"** to install a new hard disk drive in the slot where the old hard disk drive was uninstalled. Install a dummy tray in an empty slot when using the server in this condition.

Notes on Replacing Hard Disk Drives in the RAID System

When the hard disk drives are in the RAID System configuration, you can restore the state before an error using the auto-rebuild feature that stores the data in the old hard disk drive into a new one.
The auto-rebuild feature is available for the RAID1, RAID5, RAID6, RAID10, or RAID50.

Auto-rebuild is automatically carried out when you hot-swap a failed hard disk drive with a new one (replace the disk while the server is powered). While auto-rebuild is in progress, the DISK access LED (green) and DISK error LED (amber) flashes alternatively to indicate it.

IMPORTANT:
When the auto-rebuild fails, the DISK LED lights in amber. Remove and install the hard disk drive again to restart the auto-rebuild.

Observe the following notes for auto-rebuild.

- Do not power off the server in the period between a hard disk drive error and completion of auto-rebuild.
- When you removed a hard disk drive, wait at least 90 seconds before installing the hard disk drive back again.
- Do not replace another hard disk drive while rebuilding is in progress. (The DISK LED flashes in green and amber alternatively while rebuilding the hard disk drive.)

Power Supply Unit

Replacing Failed Power Supply Unit

Replace the power supply unit only when it failed.

IMPORTANT:
Do not unmount the power supply unit that is operating properly.

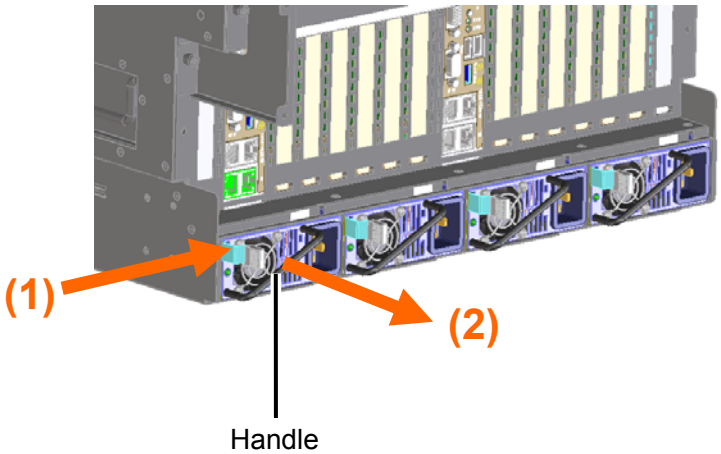
NOTE:
When the server is running under the power redundant configuration and the minimum number of servers are running properly (Status LED of the power supply unit is lighting), the power supply unit can be replaced even when the system is operating (power-on status).

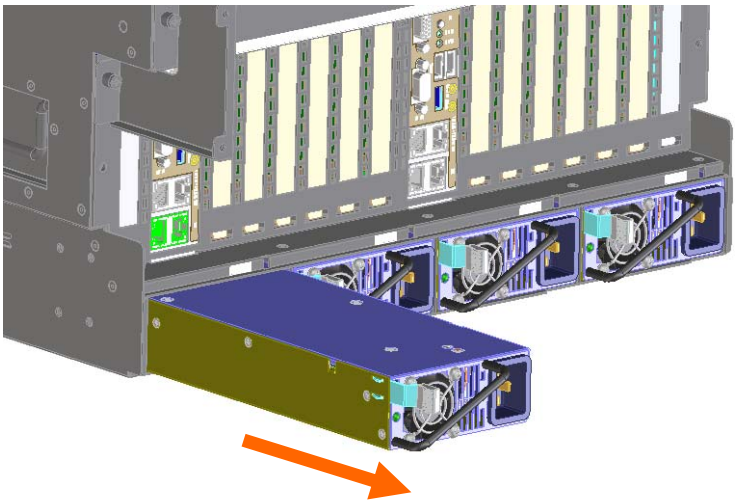
1. Check the failed power supply unit with the Status LED of the power supply unit located on the rear side.
   The Status LED lighting in amber indicates that the power supply unit is failing.
2. Refer to **"Preparation for Mounting/Unmounting"** for preparation.

   Online replacement can be performed when the power supply unit is configured by redundant configuration.

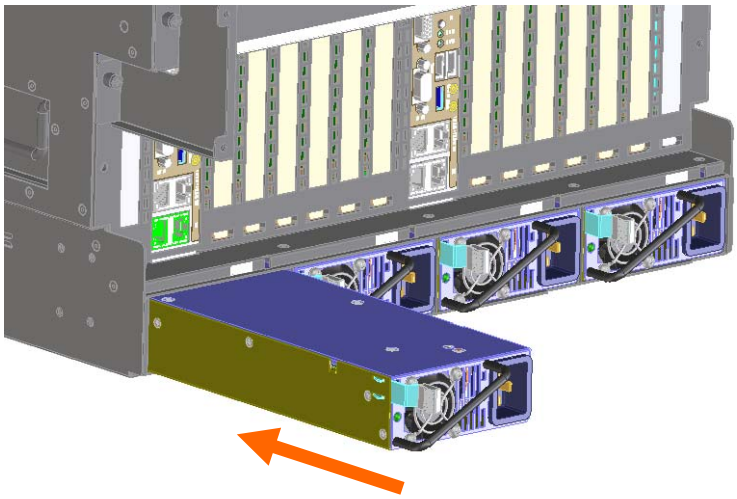
   Turning the power OFF is required if it is not the redundant configuration.
3. Open the repeat ties for preventing it from falling off and remove the power code.
4. (1) While unlocking the power supply unit, (2) hold the handle and pull out slowly backward to unmount the unit.

IMPORTANT:
Pull out the power supply unit horizontally. The power supply unit or internal connector may be damaged if it is inclined or pressure is added from side to side and up and down while pulling out.





5. Mount the power supply unit with opposite steps of steps 1-4. Confirm that it is inserted completely and locked till it clicks.



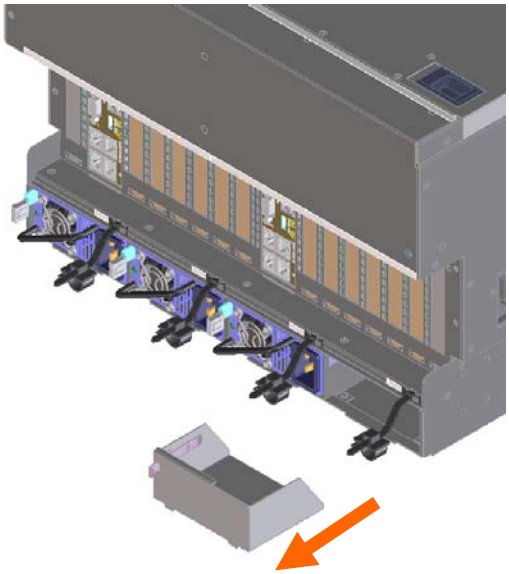
6. Install the power code and fix the cable with the repeat ties for preventing from falling off.

NOTE:
When the power supply unit of the server operating in power redundant configuration is replaced while the power is ON (Online), the Status LED lights in green after the power supply unit is mounted when the power code is connected.
On the other hand, when the power supply unit operating in non-power redundant configuration is replaced while the DC power is OFF (Offline), the Status LED blinks in green after the power code is connected. And it lights when the DC power is turned ON.

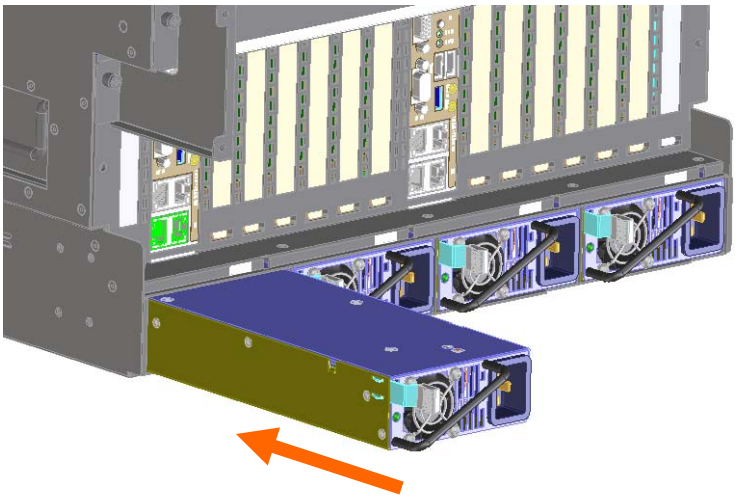
7. Clear the maintenance mode set in step 2.

Adding Power Supply Unit

1. Unlock and remove the dummy cover from the power supply unit slot to be added.



2. Mount the power supply unit. Confirm that it is inserted completely and locked with a clicking sound.



3. Install the power code and fix the cable with the repeat ties for preventing from falling off.

NOTE:
When the power supply unit is added while the power is ON (Online), the Status LED lights in green after the power supply unit is added followed by the power code is connected.
On the other hand, when the power supply unit is added while the DC power is OFF (Offline), the Status LED blinks in green after the power code is connected. And it lights when the DC power is turned ON.

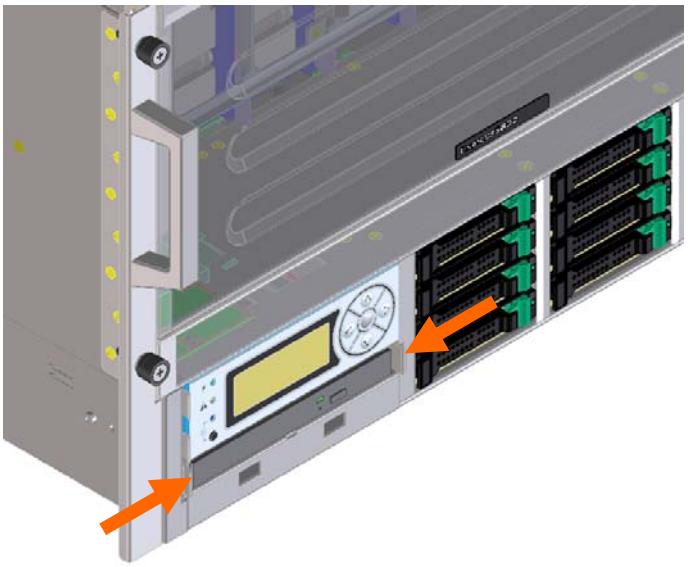
DVD Drive

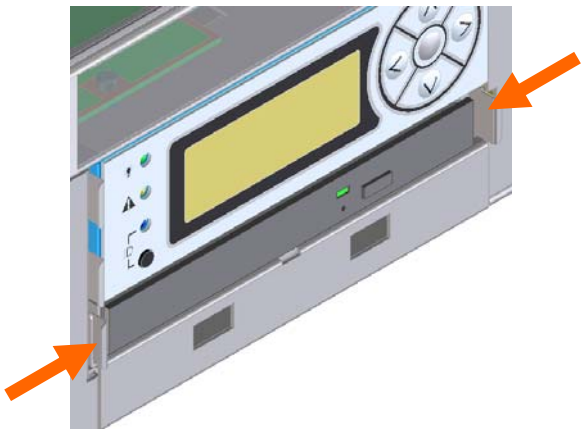
Uninstallation

Uninstall the DVD drive by following the procedure shown below.

1. Refer to “Preparation for Mounting/Unmounting” for preparation.

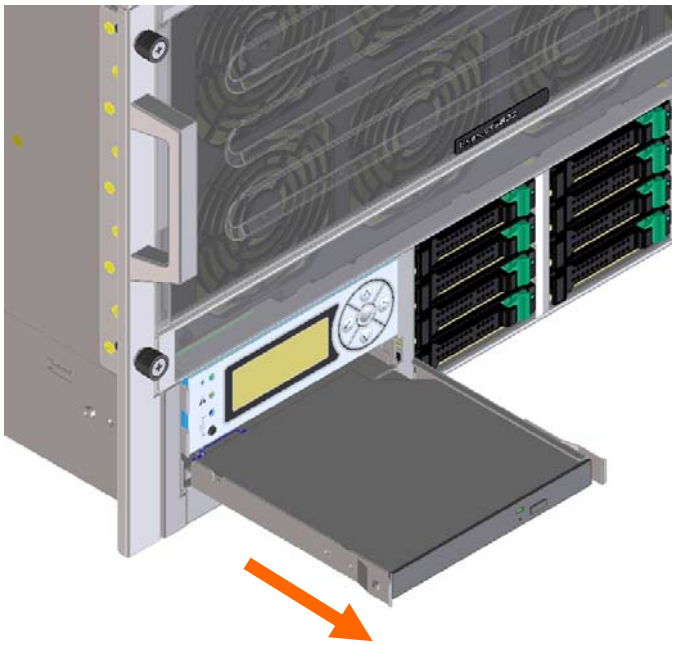
2. Push the 2 lock levers inward located on the right and left side of the DVD drive.





3. Pull out the DVD drive forward with two lock levers being unlocked.

4. When it is unlocked, release the lock levers and pull out the DVD drive completely.



IMPORTANT:
Pull out the DVD drive horizontally. The DVD drive or internal connector may be damaged if it is inclined or pressure is added from side to side and up and down while pulling out.

5. Clear the maintenance mode set in step 1.

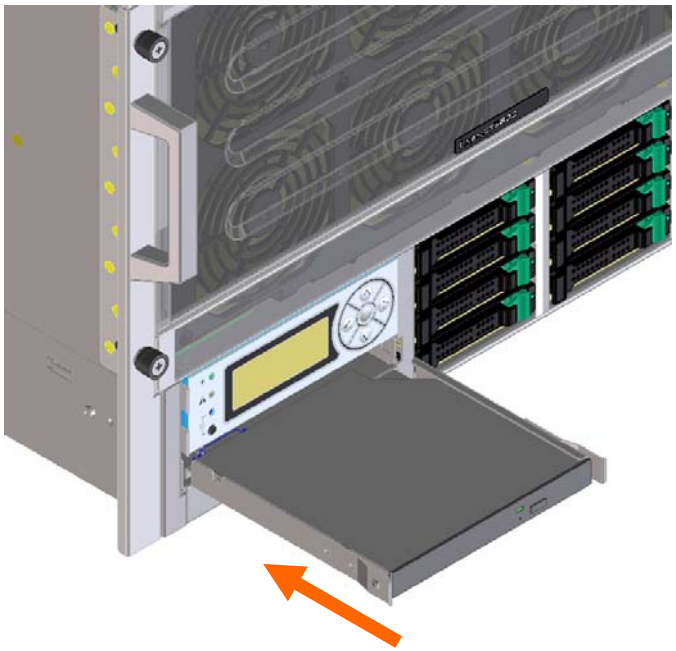
Installation

Install the DVD drive by following the procedure shown below.

1. Refer to “Preparation for Mounting/Unmounting” for preparation.

2. Insert the DVD drive into the DVD slot.

3. Push the DVD drive inward completely until the lock levers on the right and left side of the DVD drive are locked with a clicking sound.



IMPORTANT:
Pull out the DVD drive horizontally. The DVD drive or internal connector may be damaged if it is inclined or pressure is added from side to side and up and down while pulling out.

4. Refer to **“System Diagnostics”** in **Operation and Maintenance** to perform the diagnostic test.

5. Clear the maintenance mode set in step 1.

Cooling Fan

Unmount

Replace the cooling fan when it failed.

Pulling Out Server from Rack

Mount/Unmount the cooling fan with the server being pulled out from the rack.

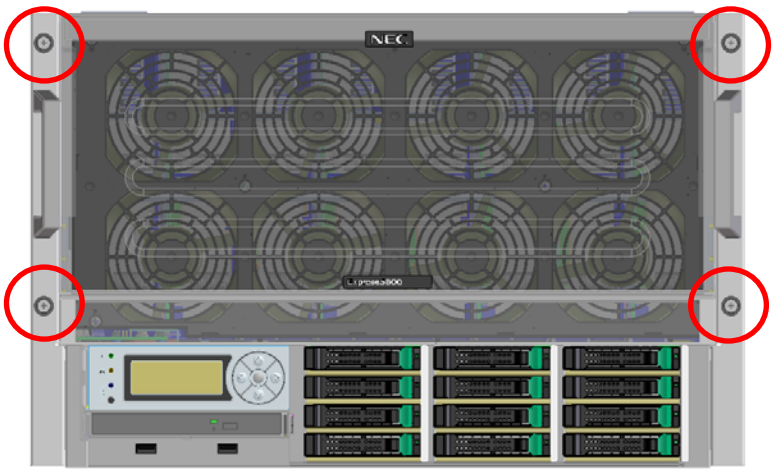
⚠ CAUTION



Observe the following instructions to use the server safely.
There are risks of fire, personal injury, or property damage.
Refer to descriptions after page iii for details.

- Do not get your fingers caught.
- High temperature
- Do not mount the server when the rack is unstable.
- Pull out the stabilizer installed at the front bottom of the rack.
- Do not leave multiple servers being pulled out from the rack.

1. Refer to“Preparation for Mounting/Unmounting” for preparation.
2. Install the stabilizer to prevent from falling to the front bottom of the rack.
3. Loosen four screws (circled in red shown below) on each front end.



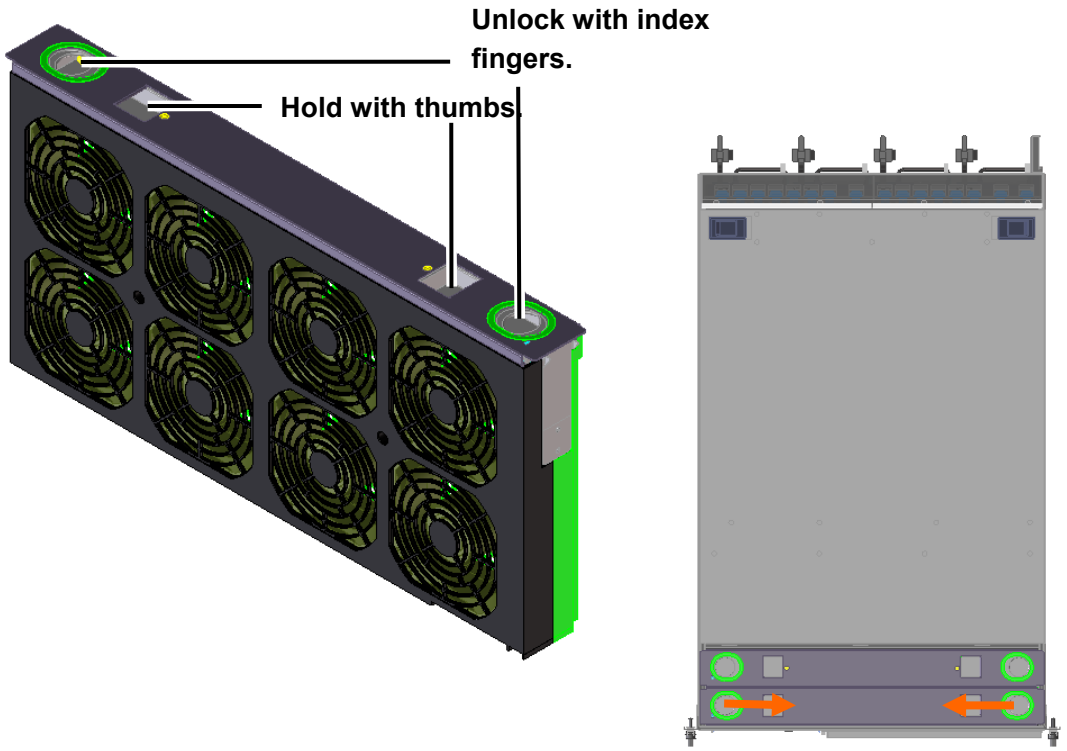
4. Pull out the server from the rack slowly and gently.
   Pull out the server until it clicks and latches

IMPORTANT:
Conduct the work carefully as the cooling fan is replaced during operation (power-on status). Forcing to pull out the server may cause the cable to unplug or to be damaged.

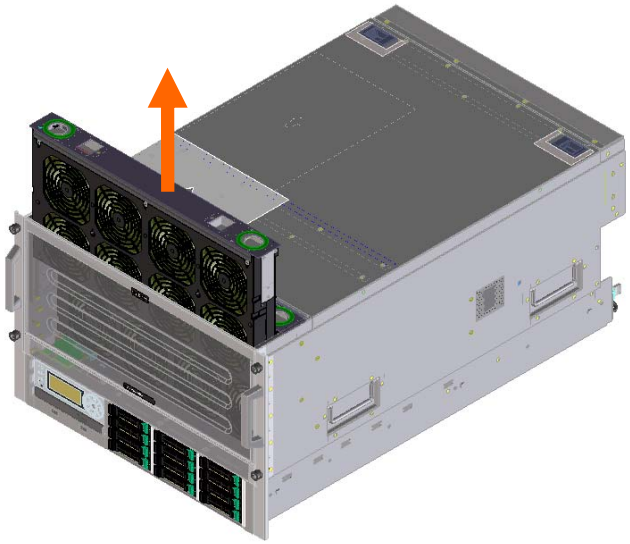
5. Check the cooling fan to be replaced.

IMPORTANT:
Confirm that the Status LED of cooling fan in the location indicating a failure is lighting in amber.

6. Push the lock levers inward on right and left end of the cooling fan and unlock them.



7. Pull out the cooling fan upward and unmount it while marinating the same condition as step 6.



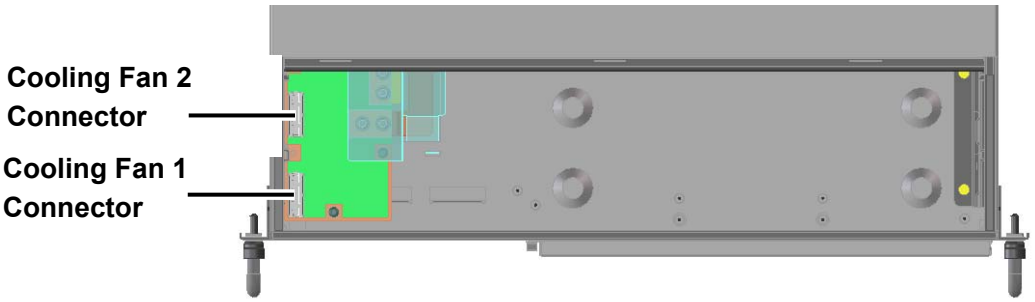
IMPORTANT:

- **A cooling fan can be replaced online (DC ON). Removing one cooling fan causes another cooling fan to rotate at a high speed. It retunes to normal rotation when a cooling fan is mounted to a slot where the failed cooling fan was unmounted.**
- **Unmount a cooling fan while the top cover is closed.**
- **Do not unmount 2 cooling fans at the same time.**
- **Replace a cooling fan (from the time to unmount and mount the fan within 60 seconds. If the time exceeds 60 seconds, abnormal temperature may be detected, which may cause shutdown.**

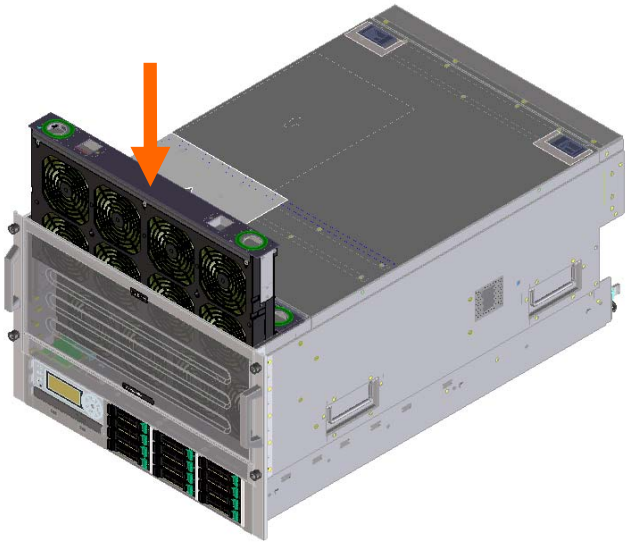
Mount

1. Check the direction of the cooling fan.
   There are connecters on the bottom left end seen from the front of the server.
   The cooling fan is configured not to be inserted with the rear and front sides reversed.

IMPORTANT:
Pay attention to the direction of a cooling fan when mounting the cooling fan. Check its front and rear sides as it is configured not to be inserted with the rear and front sides reversed.



2. Hold openings on the top of a new cooling fan with forefingers and put it down slowly along its guide.

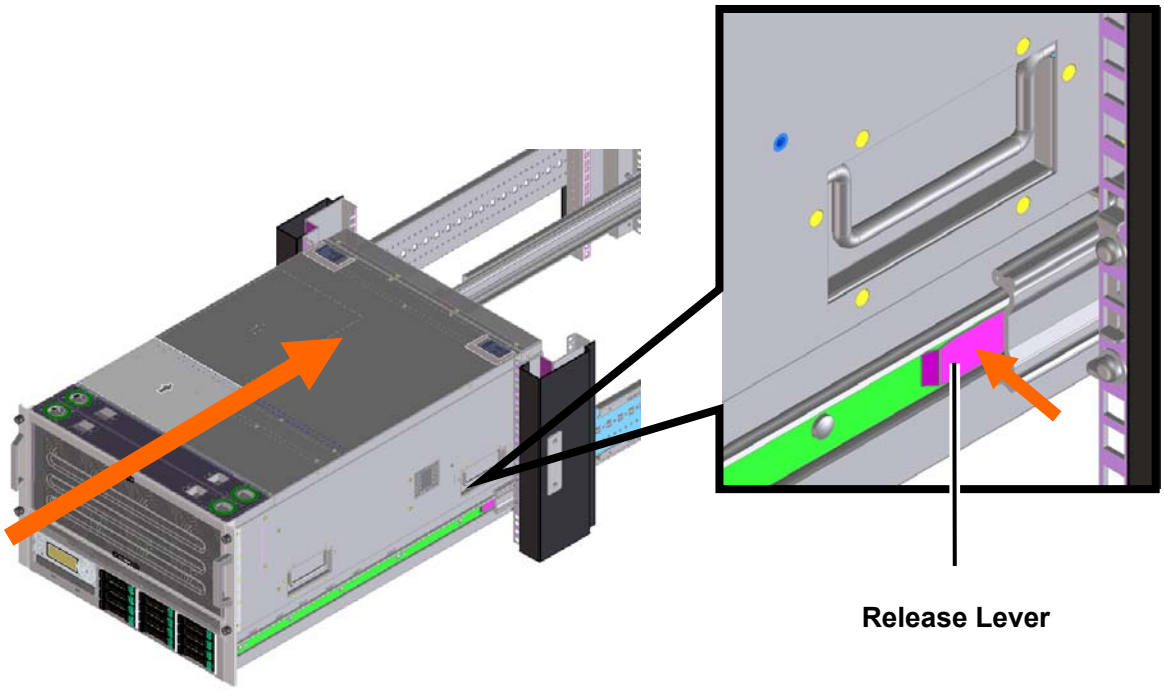


3. Push the cooling fan from the top until the lock levers are locked with a click sound.

Remounting Server to Rack

Push the release levers on the rails on the sides of the server and clear the latched status to remount the server to the rack. Be very careful not to catch your finger at this time.

1. Push the release levers on the rails on each side of the server and clear the latched status.



2. Insert this sever into the rack.

3. Tighten four screws on each font end of the server and loosened in step 3 of **"Pulling Out Server from Rack."**

4. Uninstall the stabilizer that was mounted to the bottom front of the rack.

5. Clear the maintenance mode set in step 1 of **"Pulling Out Server from Rack."**

Power Cable

Unmount

Unmount the power cable by following the procedure below.

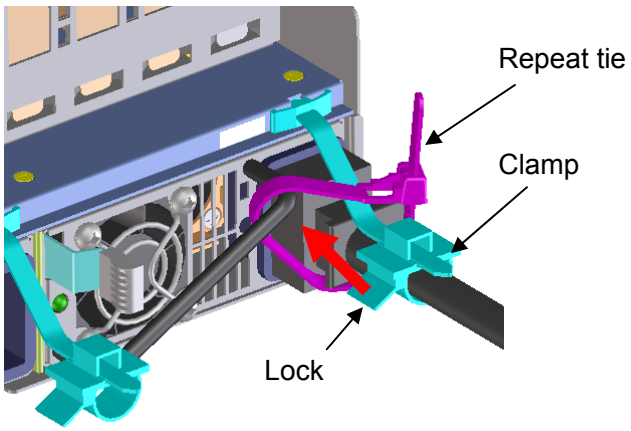
1. Refer to “Preparation for Mounting/Unmounting” for preparation.

2. Confirm that the DC powers of all servers in the system are OFF before turning off the AC power.

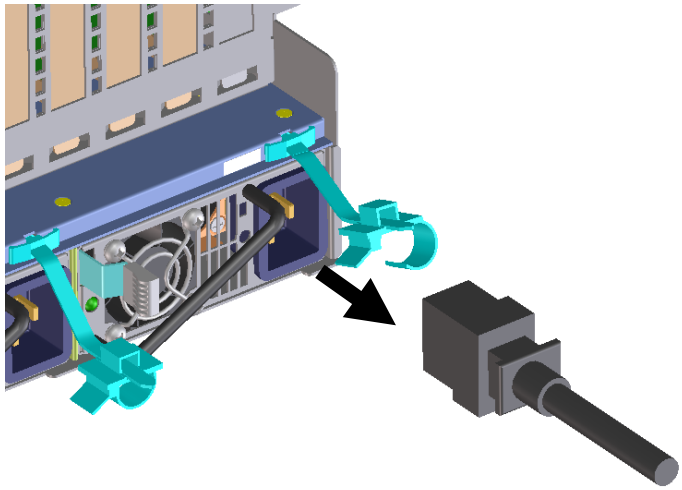
   a) Turn OFF the PDU switch when using PDU (outlet box).
   b) Turn OFF UPS when using UPS (Uninterruptible Power Supply).
   Turn off the breaker to ensure safety if not applied to the above cases.

   Confirm that the Status LED of the power supply unit is OFF after turning off the AC power.

3. Remove the forming of the power cable and unmount power cables from PDU, UPS, etc., and from the power supply unit on the rear side of the server. Ensure that connection destination can be determined at this time. Refer to the following description for unmounting the power cable from the power supply unit.
   (1) Remove the repeat tie and the clamp. The clamp is removable by pulling the lock toward the direction shown in the figure below.



(2)Remove the power cable



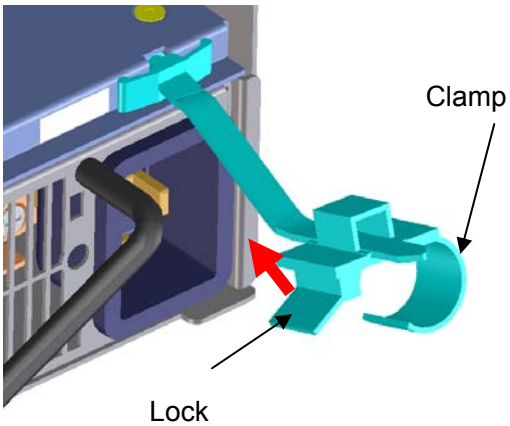
Mount

Mount the power cable by following the procedure below.

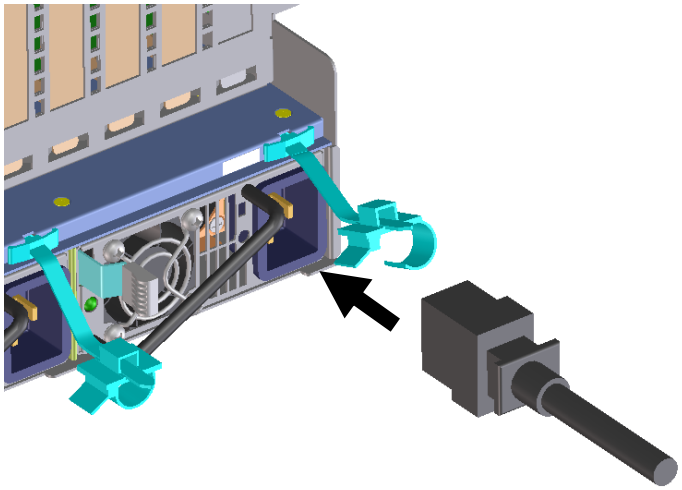
1. Connect the power cable to PDU, UPS, etc., and to the power supply unit on the rear of the server (refer to ”Power code connection”).

   The same connection and forming are performed as those before unmounting.
   Refer to the following description for mounting the power cable to the power supply unit.

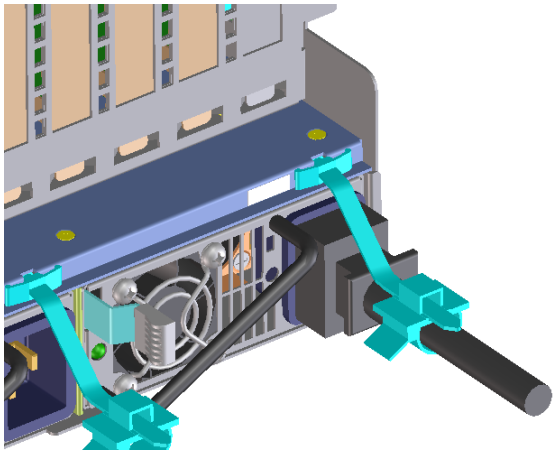
   (1)Widen the lock by pulling it to the direction described in the figure below.



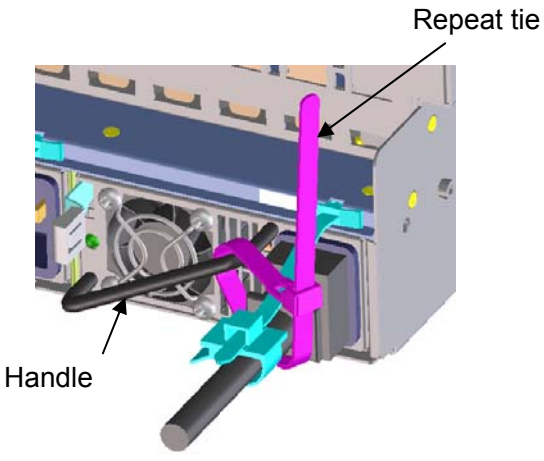
(2)Mount the power cable to the power supply unit.

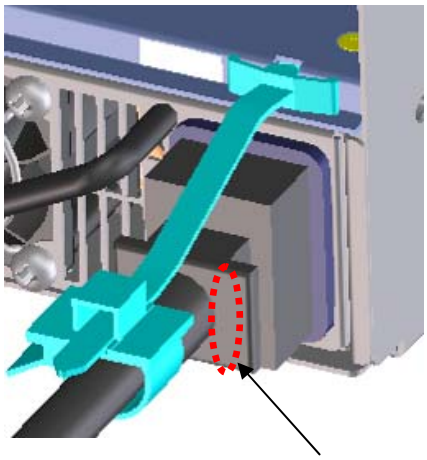


(3)Lock the clamp.



(4)Wind up the repeat tie on the handle of the power supply unit and the power cable, and tighten it so that it presses the place, as shown below, where is between the power cable code and the connector tightly. Use the repeat tie which is included in the cable arm kit. Cut the repeat tie if there is extra length.





2. Turn on the AC power.

   a) Turn ON the PDU switch when using PDU (outlet box).
   b) Turn ON UPS when using UPS (Uninterruptible Power Supply).
   Turn on the breaker when not the above cases are not applied and turned off the breaker of AC supply part.

3. Confirm that the Status LED of the power supply unit blinks in green.

4. Boot (process to the EFI Boot is adequate) all servers and confirm that System Power LED and System Status LED of EXPRESSSCOPE® Monitor, and Status LED of the power supply unit are lighting in green.

5. Confirm that the server can be booted properly and the power supply unit to which the replaced power cable is to be connected is embedded
   (Refer to item 5 **"Confirm disabled parts"** in **"Collecting Hardware Log"** of **"Collecting Failure Information"** described in **"Operation and Maintenance"**).

6. Clear the maintenance mode (refer to "Set Maint Mode").

User Interface

To operate (set, manage, etc.) the server, **EXPRESSSCOPE® Monitor** that operates the server directly and **Web Console** that operates the server remotely and **SMASH-CLP** are used.
The following shows an overview of each function and corresponding menus.

Refer to NEC EXPRESSSCOPE® Monitor, Web Console Function SMASH-CLP for details.

Operation Level	Menu Display and Main Functions of EXPRESSSCOPE® Monitor	Menu Display and Main Functions of Web Console
System Per System	**System** • Display information (System Name, System Serial Number, etc.) • Switch between DVD drive on the front of server and USB port (A1080a-D) • Set Network (For System Web Console) • Set LCD password • Set/Clear maintenance mode	**System** • Display system, server, and resource status • Display power status and power consumption • Display and collect Sensor and Event Logs • Display information on mounted parts • Various setting (date, customer information, mode setting, hardware setting, etc.) • Set and display core in processor socket • Register user account • Display failure information
Server 1/Server 2 Per Server	**Server 1/Server 2** • Display information (Sever Name, Server Numbered.) • Display System GUID • Turn ON the power of server OS Shutdown, Forcible DC OFF, Hardware Reset, Force Dump, Power Cycle • Set Network (For Sever Web Console) • Clear failure information • Reset BIOS parameter (restore to the factory default)	**Server 1/Server 2** • Display server status • Display power status • Power-ON, Forcible power-OFF • OS Shutdown • Hard Reset • Force Dump • Display and collecting Sensor and Event Logs • Display information on mounted parts • Each setting (server name, customer information, and mode setting) • Save and restoring SG information • Display failure information • Display virtual LCD
Resource Per Platform	**Box** • Display environmental information (power consumption, intake air	**Resource** • Power status of all servers • Overall status of all servers

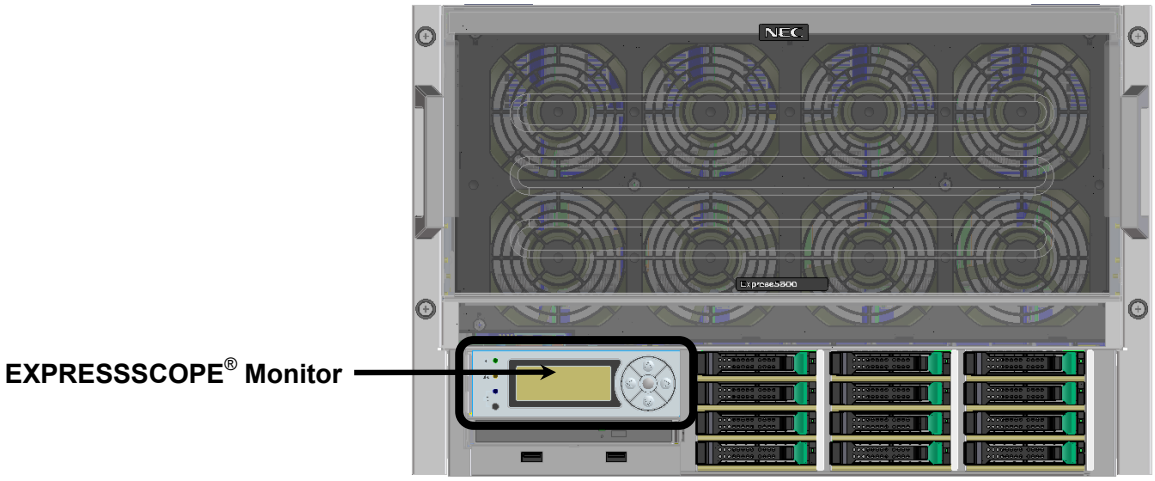
(Overall Hardware)	temperature) • Lighting/turning off ID LED • Set Network (for Resource Web Console) • Reset management module setting (restore to the factory default)	• Power status of hardware unit • Overall status of hardware unit • Operating status of hardware unit

Operation Level	Menu Display and Main Functions of SMASH-CLP
System Per System	**system1** • Display GUID information • Set Network
Server 1/Server 2 Per Server	**partition 1/partition 2** • Display GUID information • Set Network • Turn ON the power of server OS Shutdown • Set BIOS
Resource Per Platform (Overall Hardware)	**Resource1** • Display GUID information • Set Network

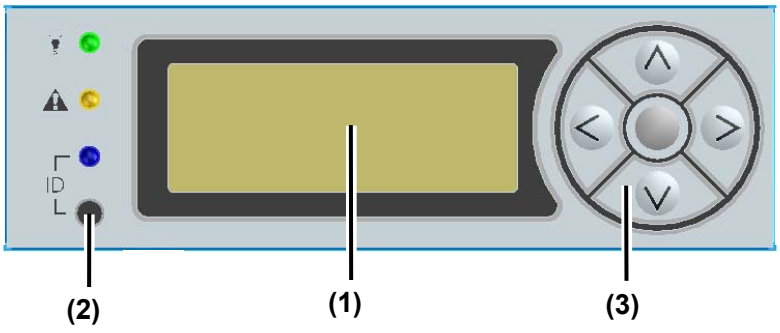
NEC EXPRESSSCOPE® Monitor

NEC EXPRESSSCOPE® Monitor

With EXPRESSSCOPE® Monitor, it is possible to turn ON/OFF the power of the server, check the system information or status, and set each network.
EXPRESSSCOPE® Monitor is located on the bottom front left of the server.



NEC EXPRESSSCOPE® Monitor Operation Method



(1) LCD : Abbreviation of Liquid Crystal Display.

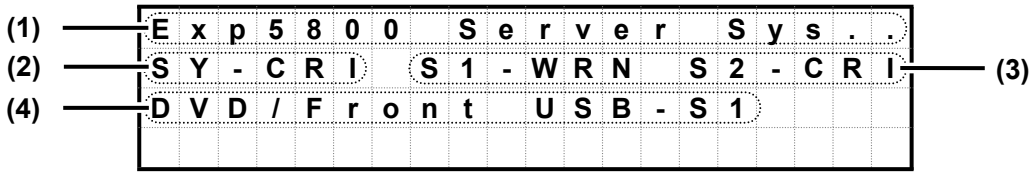
(2) ID Button (Front) : Enables a user to light or turn off the ID LED.
ID LED can be lit by pressing the button while the ID LED is off.
ID LED can be OFF by pressing the button while the ID LED is lighting.

(3) Navigation Button : Operates the cursor displayed on LCD.

NEC EXPRESSSCOPE® Monitor Display

The following image shows a display example of the EXPRESSSCOPE® Monitor LCD main screen.
On the EXPRESSSCOPE® Monitor LCD, 20 characters crosswise and four lines lengthwise are used to display information on the server.

Format and Display Example of Main Screen



(1) System Name : Displays System Name registered by customers.
(Maximum number of displayed characters is 20)
"Exp5800 Server System" is registered as a display example.
When System Name is 21 characters or longer, the last two of the 20 characters are displayed as "..".

(2) System Health State : Displays system status.
NRM = Normal (indicates normal state)
WRN = Warning (indicates operable failure occurrence)
CRI = Critical (indicates critical failure occurrence)

(3) Server Health State : Displays server status.
The meaning of displayed characters is the same as that of System Health State in (2).
For **A1080a-S/A1080a-E** models, only S1 is displayed and S2 is not displayed as this display shows the existing server only.

(4) DVD/Front USB State: Displays whether DVD/Front USB is configured in Server 1 or Server 2 in **A1080a-S**/**A1080a-D** model.
S1 refers to Server 1.
S2 refers to Server 2.

Displayed for **A1080a-S**/**A1080a-D** model.
Not displayed for **A1080a-E** model.

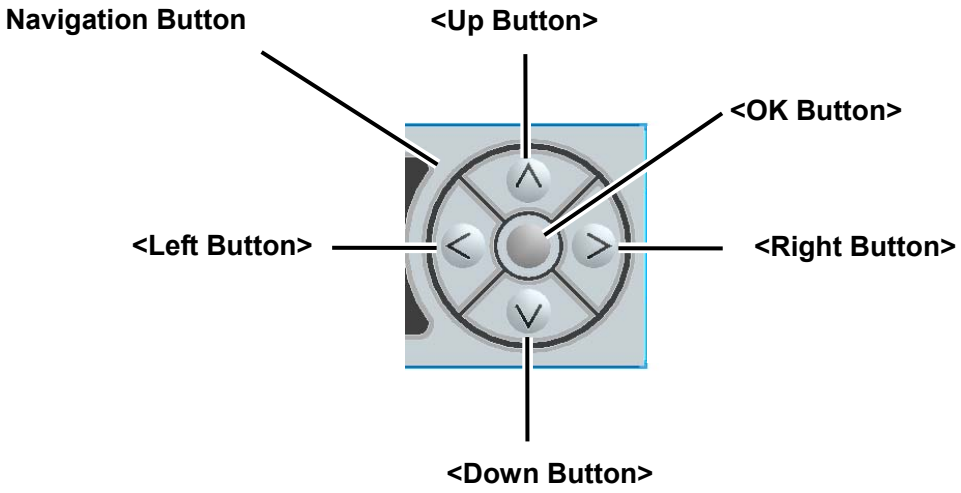
IMPORTANT*

- **If no operation is performed for a certain period of time (30 seconds) on EXPRESSSCOPE® Monitor of LCD, the sleep function is activated and screen display and backlight are turned off.**
  When starting the operation again from the off state, press any button to display the screen again.
- **Main EXPRESSSCOPE® Monitor screen information is not updated automatically. Information is updated at the timing of switching the screen with the button operation.**
- **Server Health State may not be displayed immediately after the management module is booted. It can be displayed properly by switching the screen with the button operation and by updating information.**

ID Button (Front)

EXPRESSSCOPE® Monitor and the ID LED on the rear side of the server light when pressing the ID button with the ID LED being OFF. To release the LED from lighting, press the ID button (front) or ID button (rear), or turn it off with operation on Web Console.

Navigation Button



"OK" button located in the center enables the following operations.

- Move to **Operation Menu**
- Determine each item in **Operation Menu**

"Up" button or "Down" button enables the following operations.

- Move the cursor (arrow: mark) within **Operation Menu**
- Change values in Operation Menu (when setting values such as an IP address)

"Left" button or "Right" button enables the following operations.
(move the cursor within Operation Menu (when setting values such as an IP address)

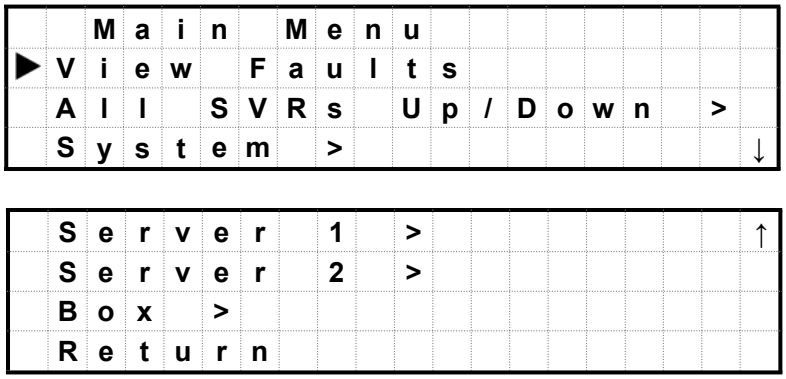
NEC EXPRESSSCOPE® Monitor Operation Menu

It is possible to display system or server information, display failure information, and set servers in **Operation Menu**. When pressing **"OK"** button located in the center of the navigation button in the Main Screen status, the screen moves to **Main Menu** of **Operation Menu**.

Main Menu

In **Main Menu**, the following message is displayed on the LCD of the EXPRESSSCOPE® Monitor.

Display Format for Main Menu



Item	Description
View Faults	Display failure information (FRU name, parts number, etc.) * View Faults items are displayed only when a failure occurs.
All SVRs Up/Down	Move to server UP/Down and password setting options
System	Move to option items in System
Server 1	Move to option items in Server 1
Server 2	Move to option items in Server 2 * Displayed for **A1080a-D** model only
Box	Move to option items in Box
Return	Return to Main Screen

- Select **"Up"** or **"Down"** button of the navigation button to move within **Main Menu**.
- The leftmost **"** ▶**"** indicates the currently selected item.
- Pressing **"OK"** button enables to move to items in the menu.

- Executing **“Return”** enables to return to the main screen.

- The top right edge “↑” display or bottom right edge”↓” display is the indication of other information available on that direction.

- The “ > ” display at the end of each item indicates there are its sub menus hidden under it.

- If no button operation is performed for a certain period of time in the **Main Menu** status or its sub menu status, the screen returns to the main screen automatically.

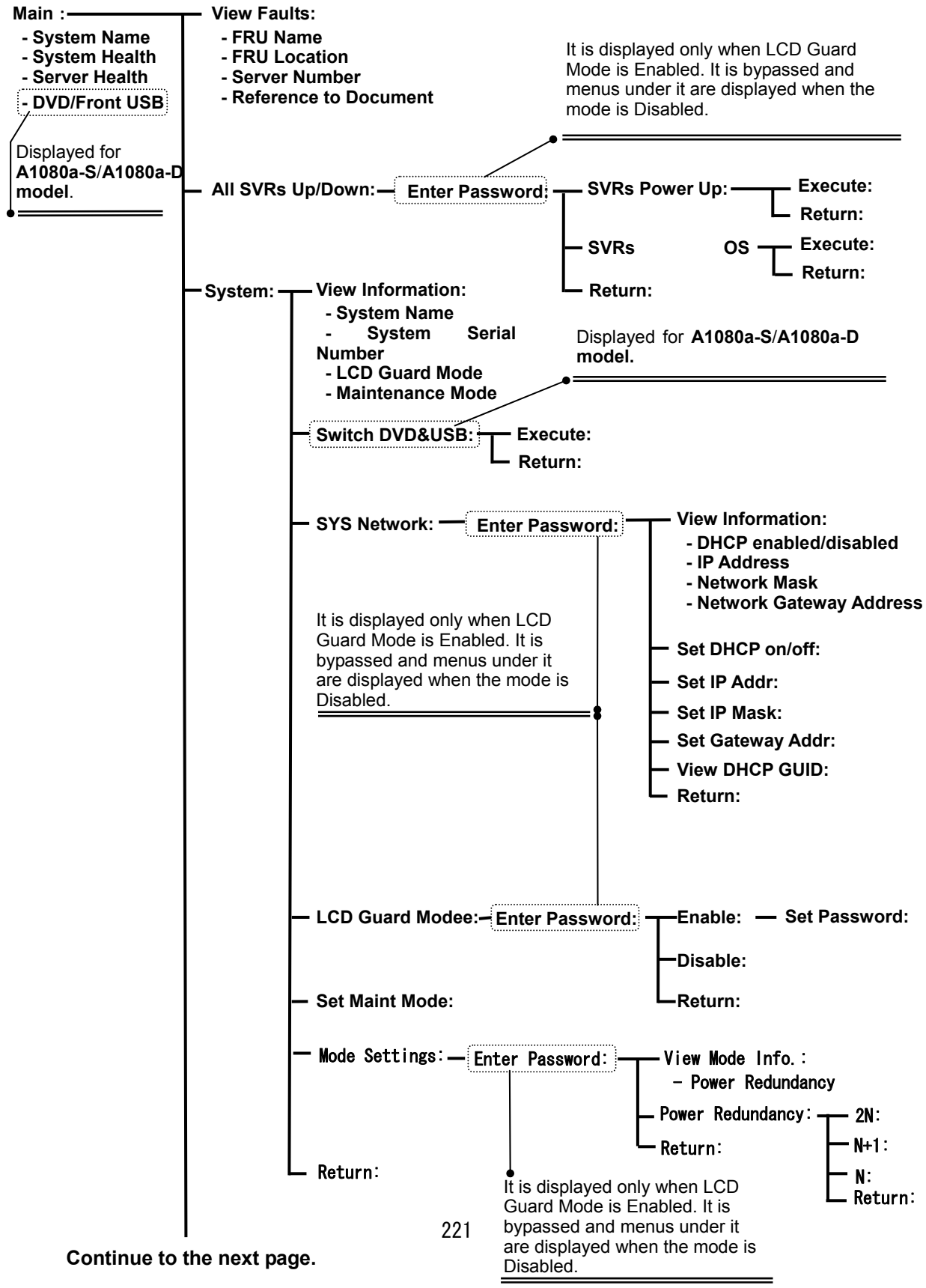
- “View Faults” is displayed only when there is a failed module/unit in the system.

- For **A1080a-D** model, “Server 1” is not displayed while the firmware of the management module is being rebooted.

- “Server2” is displayed for **A1080a-D** model only. For **A1080a-D** model, it is not displayed while the firmware of the management module is being rebooted.

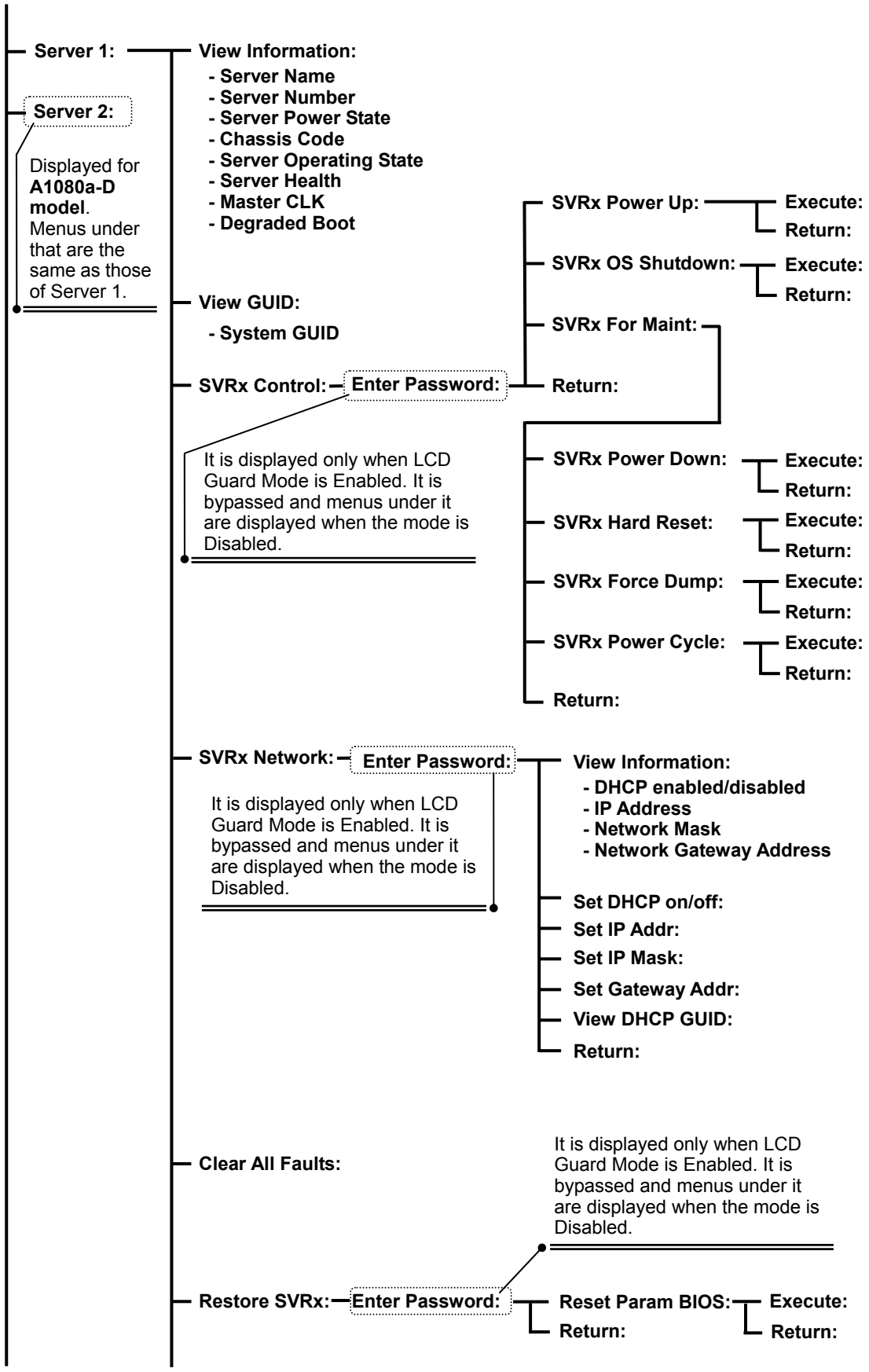
Option Items under **Main Menu**

The tree structure is used for option items. Displaying information, moving to sub menus, each setting, and power-OFF/ON can be performed by using each option. The following shows the tree structure of all menu items in **Operation Menu**.



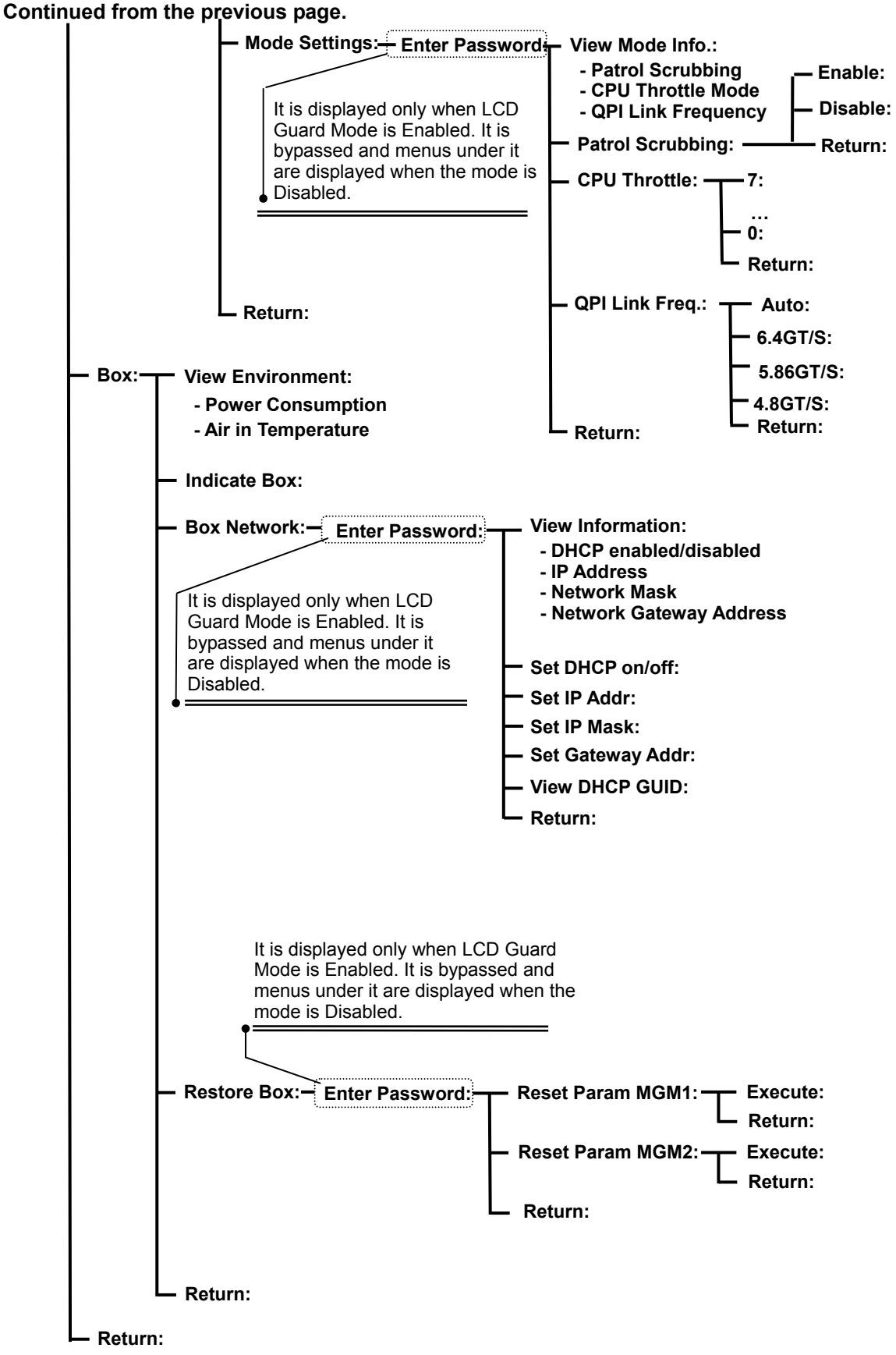
Continue to the next page.

Continued from the previous page.



Continue to the next page.

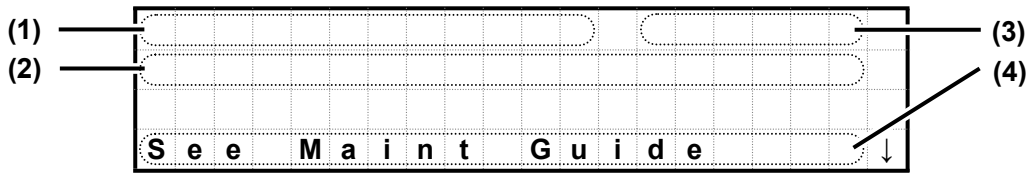
Continued from the previous page.



Display at Fault Occurrence

When selecting and executing “View Faults” in **Main Menu**, the screen moves to View Faults. **“View Faults”** is displayed only when there is a failed module or unit in the system.

Display Format for View Faults



(1) FRU Name : Full name of FRU is displayed.
(Maximum number of displayed characters is 12)

(2) FRU Location : Proper location of FRU in the system is displayed.
(Maximum number of displayed characters is 19)
FRU location can be specified with this string.

(3) Server Number : Server number that FRU belongs to is displayed.
(Maximum number of displayed characters is 6)
It is hidden when FRU does not belong to any server.

(4) Reference to document : Document name to be referred to in order to replace FRU parts for maintenance. (Maximum number of displayed characters is 19)
“See Maint Guide” is displayed fixedly on “View Faults.”

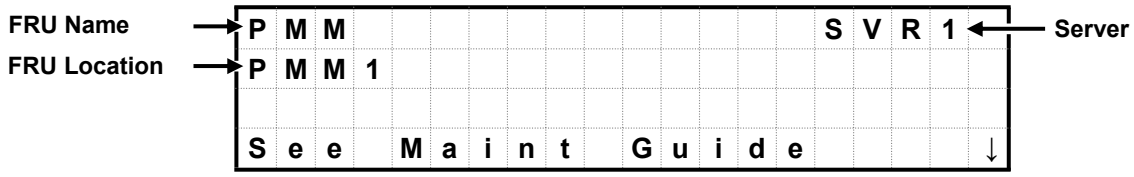
- One failed FRU information is displayed on one screen.
- The bottom right edge “↓” display or top right edge “↑” display is the indication of the FRU information available on that direction.
- Scroll the **View Faults** screen to the next page or previous page with **“Up”** or **“Down”** button.
- Press **“OK”** button to return to **Main Menu**.
- Information on a failed FRU will be cleared when FRU parts indicated below are replaced for maintenance.

  To be cleared by online replacement : Internal Hard Disk Drive
  To be cleared by physical parts replacement : Processor Memory Module (PMM), Management Module (MGM), Cooling Fan, Power Supply Unit (PSU) Base Module

NOTE:
For parts such as DIMM not cleared by the above replacement, it is required to go to [Main Menu] -> [Serverx] and execute [Clear All Faults] after resolving the cause of Fault. If executing this option without resolving the cause of Fault, this message may be deleted, but Fault may occur again.

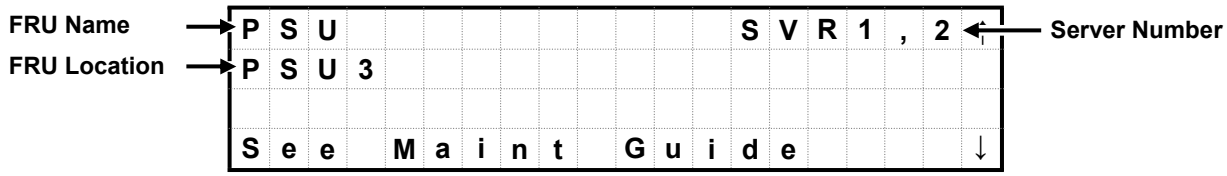
Display Format for View Faults

• Example when processor memory module 1 in Server 1 failed.



- **FRU Name : PMM** ····· FRU is displayed. “Processor Memory Module” in this example.
- **Server Number : SVR1** ····· Shows that the indicated FRU belongs to Server 1.
- **FRU Location : PMM1** ····· Indicates that it is Processor Memory Module #1.

• Example when 3 power supply units shared in Server 1 and Server 2 failed.



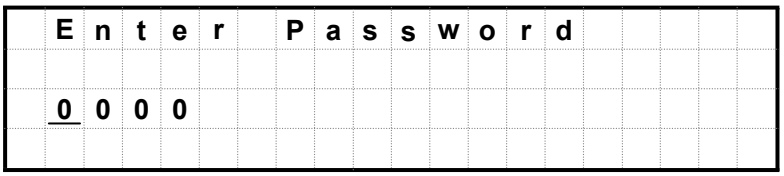
- **FRU Name : PSU** ····· Power Supply Unit
- **Server Number : SVR1, 2** ···· Indicates that it belongs to (is shared in) both Server 1 and Server 2. (For **A1080a-D** model only)
- **FRU Location : PSU3** ····· Indicates that it is Power Supply Unit #3.

All SVRs Up/Down Menu

This enables a user to turn ON the power of the server and shut down OS.

Enter Password Menu

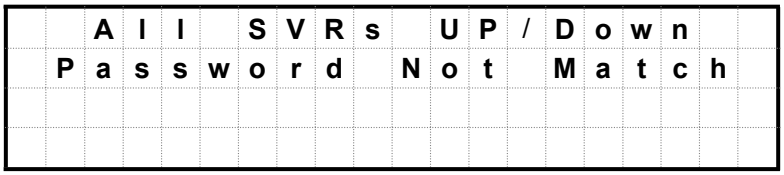
When **LCD Guard Mode** is set to **"Enable," "Enter Password Menu"** is displayed by selecting and executing **"All SVRs Up/Down >"** in the **Main Menu** status.



- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9.
  Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

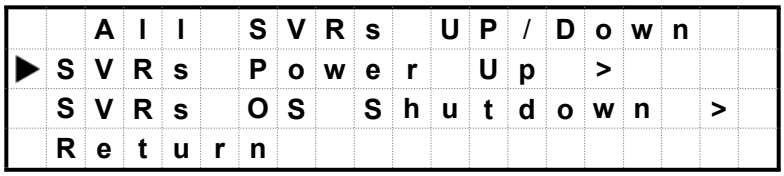
- When pressing **"OK"** button following the password entry, the screen moves to **All SVRs Up/Down Menu** (previous page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.
  When it does not match, **Password Not Match** screen (below image) is displayed.



- When pressing **"OK,"** it returns to **Main Menu**.

All SVRs Up/Down Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **"All SVRs Up/Down Menu"** by selecting and executing **"All SVRs Up/Down >"** in the **Main Menu** status.

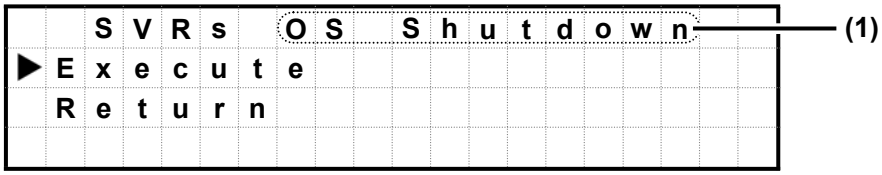


- Select **"Up"** or **"Down"** button to move within **All SVRs Up/Down Menu**.
- The leftmost " ▶ " indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to Main Menu.
- For **A1080a-D** model**,** this menu executes **Power Up** or **OS Shutdown** (**Soft Shutdown**) of all Servers (**Server 1** and **Server 2**) in the System.
- For **A1080a-S/A1080a-E** model, **Power Up** or **OS Shutdown** is equivalent to those of **Server Menu. Server Control** in **Server 1** as there is only one Server (**Server 1**).

ALL SVRs Up/Down Menu

Execute Menu

When selecting and executing **"SVRs Power Up >"** or **"SVRs OS Shutdown >"** in the **All SVRs Up/Down Menu** status, the screen moves to **Execute Menu**.



(1) Control Type **: Item** (**Power Up** or **OS Shutdown**) selected in **All SVRs Up/Down Menu** is displayed.

- Select **"Up"** or **"Down"** button to move within **All SVRs Up/Down Menu**.

- The leftmost **"** ▶ **"** indicates the currently selected item.

- Press **"OK"** to execute the menu item.

- When selecting **"Execute,"** the process of the selected items (**Power Up** or **OS Shutdown** selected and executed in two pages earlier) is performed.

- When Selecting and executing **"Return,"** the screen goes back to the **All SVRs Up/Down** menu.

- When Selecting and executing **"Power Up,"** All Servers with DC OFF status are booted.

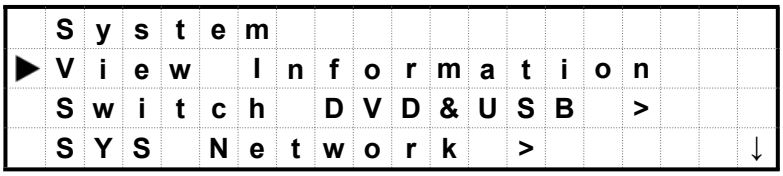
- Selecting and executing **"OS Shutdown"** enables to execute Soft Shutdown of all Servers in the system in which T&D is being executed or OS is booted.

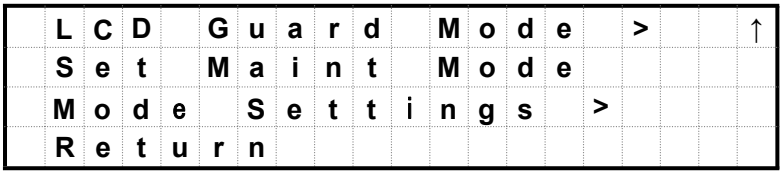
IMPORTANT:
Don't shut down OS until the OS boot is finished after starting power on. If OS boot is finished, then the "Server Operating State" on EXPRESSSCOPE® Monitor/Server Menu/ View Information Screen will be "OS running/EFI Manager Booted".

System Menu

Display Format for System Menu

When selecting and executing **"System >"** in the **Main Menu** status, the screen moves to **System Menu.**





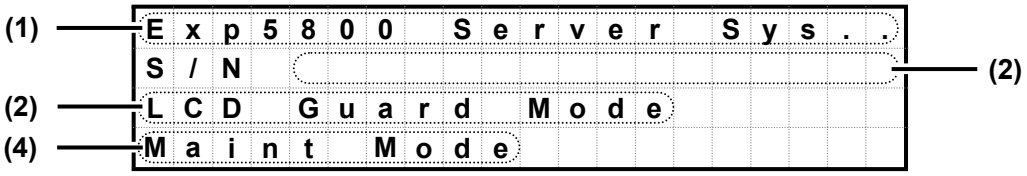
- Select **"Up"** or **"Down"** button to move within the **System Menu.**
- The leftmost **" ▶ "** indicates the currently selected item.
- Press **"OK"** button to execute the menu items.
- When Selecting and executing **"Return,"** the screen goes back to **Main Menu.**
- **"Switch DVD&USB"** item is displayed for **A1080a-S**/**A1080a-D** model.
- **"Set Maint Mode" item** becomes Disabled status when selected in Enabled status. It also becomes Enabled status when selected in Disabled status.

IMPORTANT:
It returns to Disabled status after 3 hours passes without selecting it to Disabled status after Enabled is selected. Unlike Web Console, time cannot be specified.

System Menu

View Information

When selecting and executing **"View Information"** in the **System Menu** status, the screen moves to **View Information Screen**.



(1) System Name : System name registered by customer is displayed. (Maximum number of displayed characters is 20) **"Exp5800 Server System"** is registered as a display example.
When System Name is 21 characters or longer, the last two of the 20 characters are displayed as "..".

(2) S/N : System Serial Number is displayed.(Maximum number of displayed characters is 16)

(3) LCD Guard Mode state : **Enabled/disabled for LCD Guard Mode** is displayed. The above string (LCD GuardMode) is displayed on LCD panel of EXPRESSSCOPE® Monitor only when **Enabled** is set.

(4) Maintenance Mode state : **Enabled/disabled** for **Maintenance Mode** of the applicable Platform is displayed. The above letters (Maint Mode) are displayed on LCD panel only when **Enabled** is set.

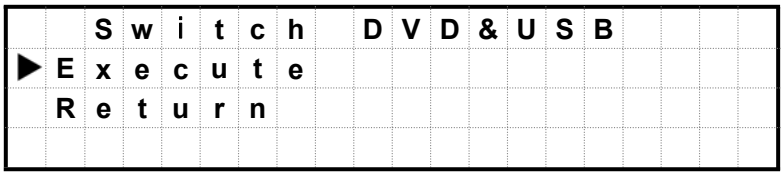
Press **"OK"** button to return to **System Menu.**

System Menu

Switch DVD&USB Execute Menu

When selecting and executing **"Switch DVD&USB >"** in the **System Menu** status, the screen moves to **Switch DVD&USB Execute Menu.**

* This menu is displayed for **A1080a-S**/**A1080a-D** Model.



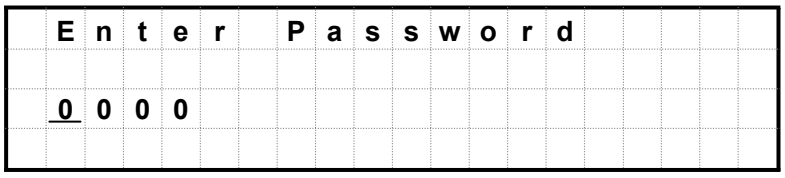
- Select **"Up"** or **"Down"** button to move within the **Switch DVD&USB Execute Menu.**
- The leftmost " ▶ " indicates the currently selected item.
- Press **"OK"** button to execute the menu item.
- When selecting and executing **"Return,"** the screen goes back to **System Menu.**
- When selecting and executing **"Execute,"** the connection destination is changed to Server 2 when DVD and Front USB are connected to Server 1, and also the connection destination is changed to Server 1 when connected to Server 2 in the same situation.

IMPORTANT:
***Don't execute this menu for A1080a-S model. It is invalid operation because Server 2 doesn't exist. If the connection destination is changed to Server 2, execute this menu again and connect to Server 1.**
***Execute online switching while the DC power is off because the drive may not be recognized depending on timing. When switching after OS is operating, the drives are recognized as USB devices. So please follow the USB operation on OS when removing/unmounting or inserting/mounting the devices.**

System Menu

Network Enter Password Menu

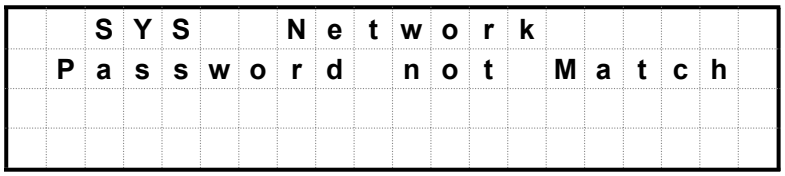
When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"(Setting place) Network >"** in the **System or Server or Box Menu** status.



- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **Network Menu** (previous page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.

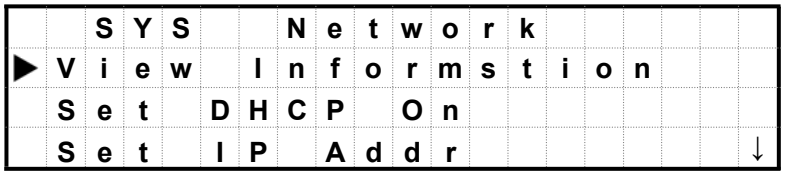


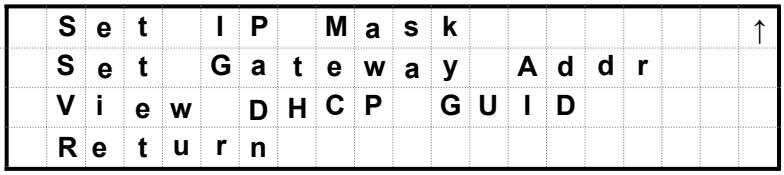
- When pressing **"OK,"** it returns to **System Menu.**

System Menu

SYS Network Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **Network Menu** by selecting and executing **"SYS Network>"** in the **System Menu** status.





• Select **"Up"** or **"Down"** button to move within the **Network Menu.**

• The leftmost **"** ▶ **"** indicates the currently selected item.

• Press **"OK"** to execute the menu item.

• When selecting **"Return,"** it returns to **System Menu.**

IMPORTANT:

- **It will take almost 10 seconds to apply the IP address which is set newly because conflict check is done before applying it.**
- **If any confliction is detected, the new IP address will not be applied and the IP address and the subnet mask will be treated as 0.0.0.0. However the gateway address will be remained.**
- **IP addresses shown below are not available as they are already reserved within the server.**
  172. 24. 0. 0/16
  172. 16. 0. 0/16

IMPORTANT:

- **On the Network Menu, it is possible to change each digit of the address from 000 to 256(decimal) effectively.**

Examples)

1)Setting to 192

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button once,then it will become 190

When 190 and select "Up" button twice, then it will become 192

2)Setting to 168

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button 3 times,then it will become 170

When 170 and select "Down" button twice, then it will become 168

3)Setting to 255 or 000

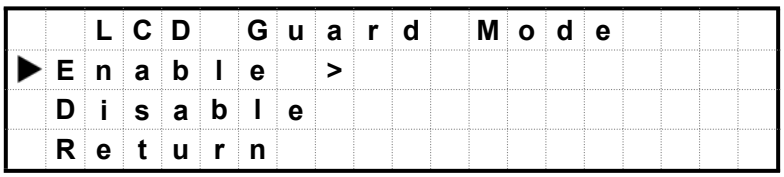
When 000 and select "Down" button once, then it will become 255

When 255 and select "Up" button once, then it will become 000

System Menu

LCD Guard Mode Enable/Disable Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **LCD Guard Mode Enable/Disable Menu** by selecting and executing **"LCD Guard Mode >"** in the **System Menu** status.



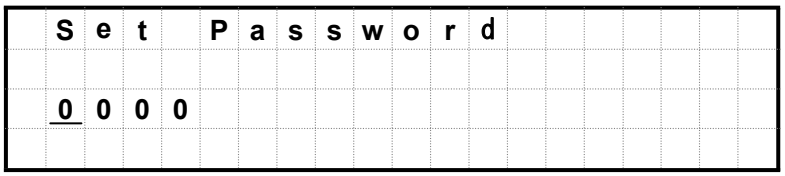
- Select **"Up"** or **"Down"** button to move within the **LCD Guard Mode Enable/Disable Menu**.
- The leftmost " ▶ " indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting and executing **"Enable,"** the screen moves to the **Set Password Menu** (next page) and password entry is prompted.
- When selecting and executing **"Disable," LCD Guard Mode** is set to **Disable.**
- Select and execute **"Return"** to return to **System Menu.**

IMPORTANT:
When forgot the password, reset the SG information of the management firmware using Resource Web Console.

System Menu

LCD Guard Mode Set Password Menu

When selecting and executing **"Enable >"** in the **LCD Guard Mode Enable/Disable Menu** status, the screen moves to **Set Password Menu**.

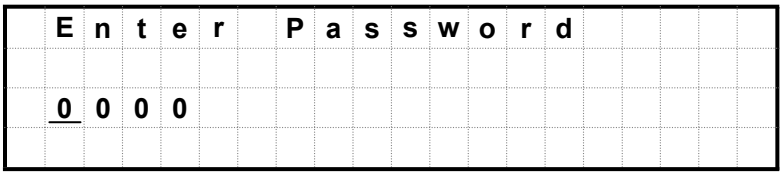


- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.
- Select **"Left"** or **"Right"** button to move the cursor from side to side.
- When pressing **"OK," LGD Guard Mode** is set to **Enable** by the entered value as a password.

System Menu

LCD Guard Mode Enter Password Menu

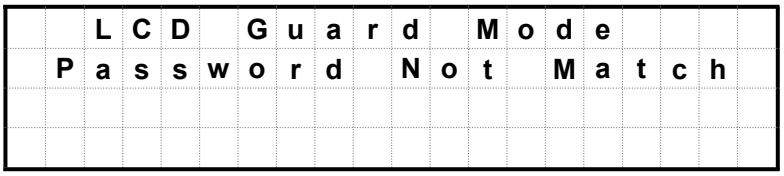
When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"LCD Guard Mode >"** in the **System Menu** status.



- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9. Default value is All 0.

- Select **"Left"** or **"Right"** to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **LCD Guard Mode Enter Password Menu** (previous page) if the entered value matches the password.
  When it does not match, **Password Not Match** screen (below image) is displayed.



- When pressing **"OK,"** the screen returns to **System Menu.**

System Menu

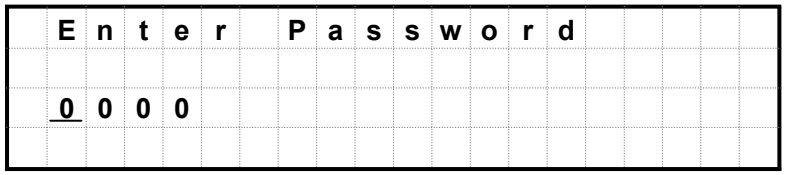
Set Maint Mode

- **“Set Maint Mode”** item becomes **Disabled** status when selected in the **Enabled** status. It also becomes **Enabled** status when selected in the **Disabled** status.

System Menu

Mode Settings Enter Password Menu

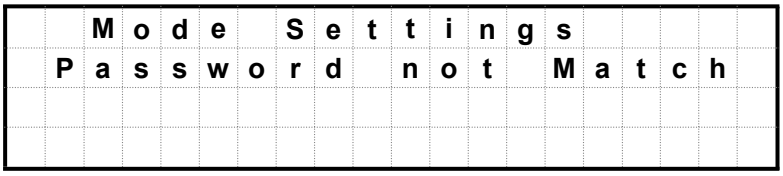
When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"Mode Settings >"** in the **System Menu** status.



- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **Mode Settings Menu** (next page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.

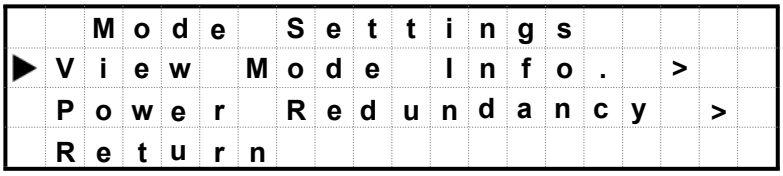


- When pressing **"OK,"** it returns to **System Menu.**

System Menu

Mode Settings Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **Mode Settings Menu** by selecting and executing **"Mode Settings>"** in the **System Menu** status.

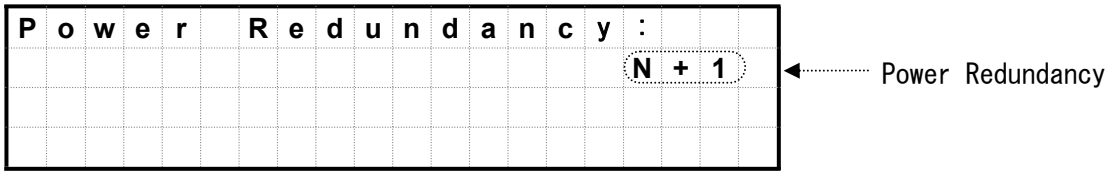


- Select **"Up"** or **"Down"** button to move within the **Mode Settings Menu.**
- The leftmost " ▶ " indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to **System Menu.**

System Menu

View Mode Information Screen

The screen moves to **View Mode Information Screen** by selecting and executing **"View Mode Info. >"** in the **Mode Settings Menu** status.



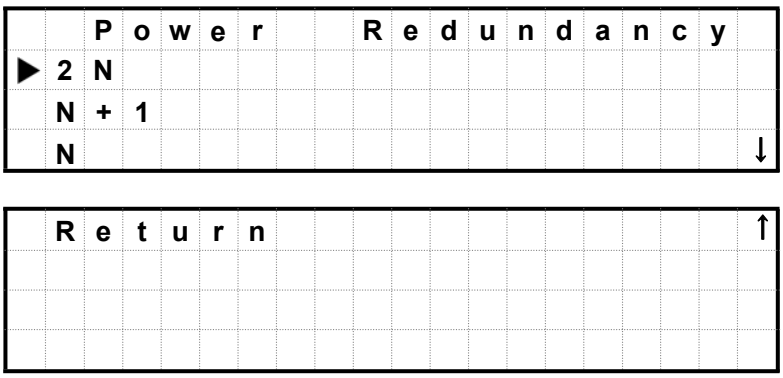
- Power Redundancy state : displays the current setting value of Power Rudundancy Mode.
  - 2N : 2N Rudundancy
    supplying power to two power supply units from two electric power companies respectively
  - N+1 : N+1 Redundancy
    An extra power supply is added to the minimum requisite power supply units
  - N : No Rudundancy

- When selecting **"Return,"** it returns to **Mode Setings Menu.**

System Menu

Power Redundancy Menu

The screen moves to **Power Redundancy Menu** by selecting and executing **"Power Redundancy >"** in the **Mode Settings Menu** status.

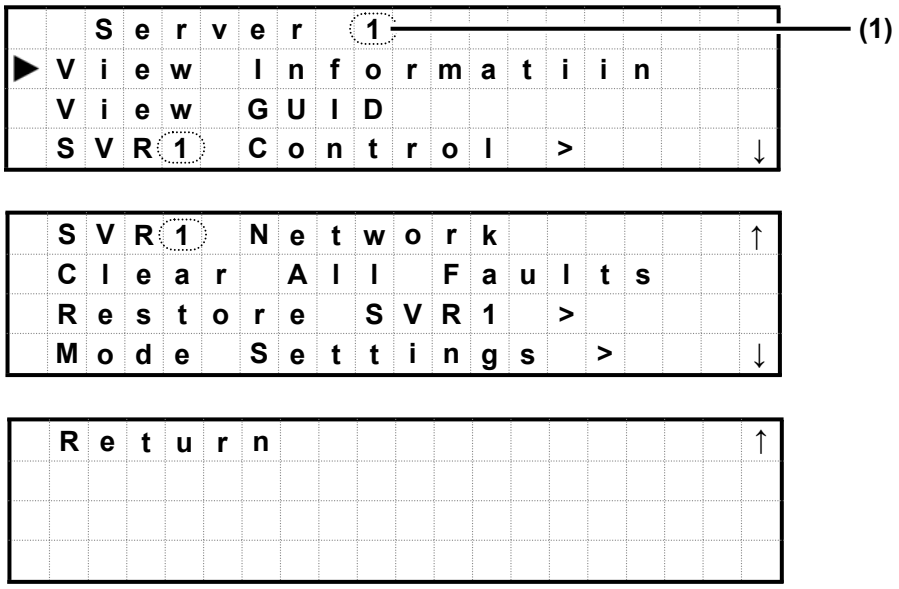


- Select **"Up"** or **"Down"** button to move within the **Power Redundancy Menu.**
- The leftmost " ▶ " indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"2N," "N+1" or "N,"** the setting for Power Redundancy is chaged to the selected value.
- When selecting **"Return,"** it returns to **System Menu.**

Server Menu

Display Format for Server Menu

When selecting and executing **"Server x >"** in the **Main Menu** status, the screen moves to **Server Menu.**



(1) Server Number **:** Server Number [1] or [2] is displayed.

• Select **"Up"** or **"Down"** button to move within the **Server Menu.**

• The leftmost **"** ▶ **"** indicates the currently selected item.

• Press **"OK"** button to execute the menu item.

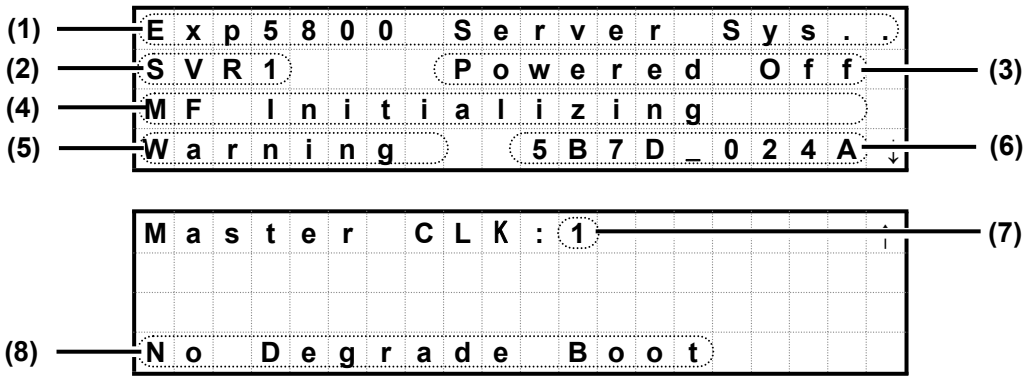
• **"Clear All Faults"** clears Fault of HW component belonging to the applicable Server.

• When selecting **"Return,"** it returns to **Main Menu.**

Server Menu

View Information Screen

• When selecting and executing **"View Information"** in the **Server Menu** status, the screen moves to **View Information.**



• Scroll the View Information Screen to next or previous screen with **"Up"** or **"Down"** button.

• Press **"OK"** button to return to Server Menu.

• The top right edge "↑" display or bottom right edge "↓" display is the indication of other information available on that direction.

• The following information is displayed.

(1) Server Name : Server Name registered by customer
When the Server Name is 21 characters or longer, the last 2 of the 20 characters are displayed as ".."

(2) Server Number : Server Number [1] or [2] is displayed.

(3) Server Power State : DC Power status of the applicable server is displayed.

(4) Server Operating State : Server State Sensor status is displayed.

(5) Health : Server Health State
"Normal" : Normal or Monitor
"Warning" : Non-Critical
"Critical" : Critical

(6) Chassis Code : Chassis Code

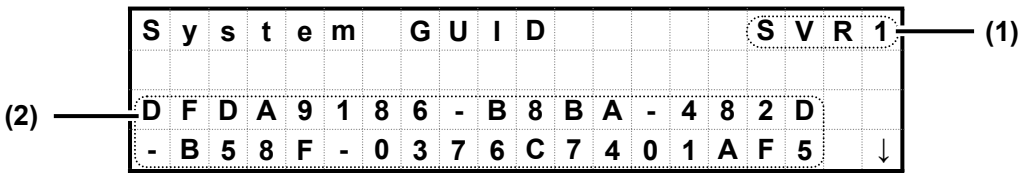
(7) Master CLK : CLK Number [1] or [2] currently assigned for Master in the applicable Server is displayed.

(8) No Degraded Boot Mode state : Allow or Not Allow **degraded boot** of the applicable Server is displayed.
As the previous page, it is displayed on the LCD panel of EXPRESSSCOPE® Monitor only when it is not allowed.

Server Menu

View GUID Screen

When selecting and executing **"View GUID"** in the **Server Menu** status, the screen moves to the **Server Menu**, **View GUID Screen.**



(1) Server Number **:** Server Number [1] or [2] is displayed.

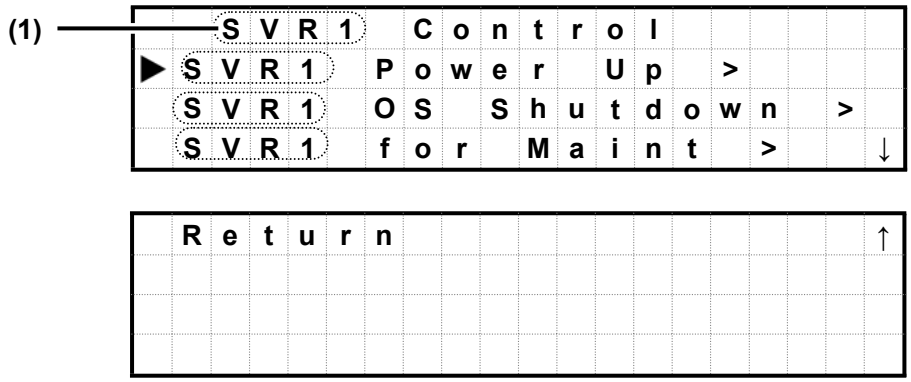
(2) GUID **:** GUID (Globally Unique Identifier) is displayed.

• Press **"OK"** button to return to **Server Menu.**

Server Menu

Server Control Menu

When LCD Guard Mode is set to **"Enable,"** the screen moves to **Server Menu**, **Server Control Menu** by selecting and executing **"SVRx Control >"** in the **Server Menu** status.



(1) Server Number **:** Server Number [1] or [2] is displayed.

• Select **"Up"** or **"Down"** button to move within the **Server Control Menu**.

• The leftmost **" ▶ "** indicates the currently selected item.

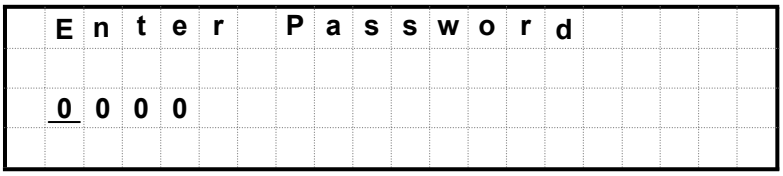
• Press **"OK"** button to execute the menu item.

• Select and execute **"Return"** to return to **Server Menu**.

Server Menu

Enter Password Menu

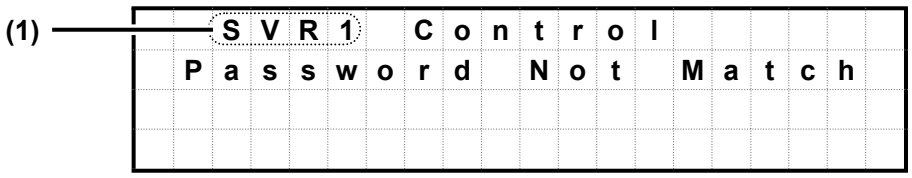
When LCD Guard Mode is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"SVRx Control >**" in the **Server Menu** status.



- Select **"Up"** or **"Down"** button to change numbers on the cursor one by one in the range from 0 to 9. Default value is se to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **Server Menu. Server Control Menu** (previous page) if the entered value matches the password.
  When it does not match, **Password Not Match** Screen (below image) is displayed.



(1) Server Number **:** Server Number [1] or [2] is displayed.

- Press **"OK"** button to return to **Main Menu**.

IMPORTANT:
When forgot the password, reset the SG information of the management firmware using Resource Web Console.

Server Menu

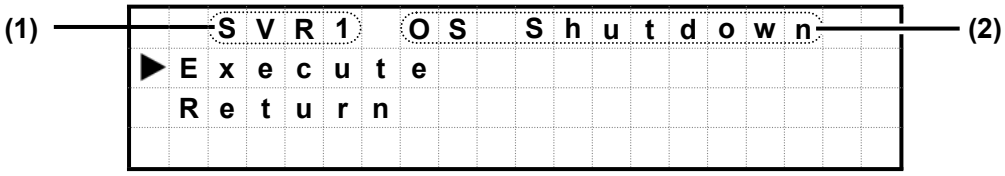
Server Control Menu

Execute Menu

Move to the applicable **Execute Menu** by either of the operations below.

a. Select **"SVRx Power Up >"** or **"SVRx OS Shutdown >"** item in the **Server Menu**, **Server Control Menu** status.

b. Select the item other than **"Return"** in the **Server Menu**, **Server Control Menu**, **For Maintenance Menu** status.



(1) Server Number : Server Number [1] or [2] is displayed.

(2) Control Type :

- The items **Power Up, OS Shutdown, Power Down, Hard Reset, Force Dump, Power Cycle** selected in the menu of "a" or "b" above are displayed for Control Type.
- Select **"Up"** or **"Down"** button to move within **Execute Menu**.
- The leftmost **"** ▶ **"** indicates the currently selected item.
- Press **"OK"** button to execute the menu item.
- When selecting **"Execute,"** the process of the selected items **Power Up, OS Shutdown, Power Down, Hard Reset, Force Dump, Power Cycle** is performed.
- Select and execute **"Return"** to return to top **Menu**.

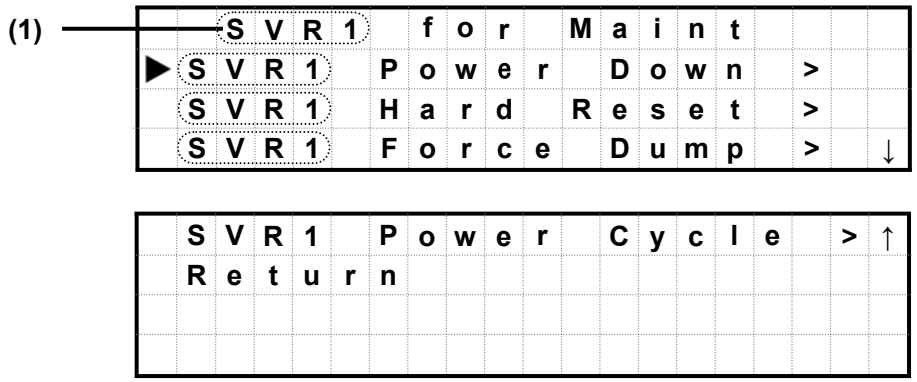
IMPORTANT:
Don't shut down OS until the OS boot is finished after starting power on. If OS boot is finished, then the "Server Operating State" on EXPRESSSCOPE® Monitor/Server Menu/ View Information Screen will be "OS running/EFI Manager Booted".

Server Menu

Server Control Menu

SVRx For Maintenance Menu

When selecting and executing **"SVRx for Maint >"** in the **Server Control Menu** status, the screen moves to **Server Menu**, **Server Control Menu**, **For Maintenance Menu**.



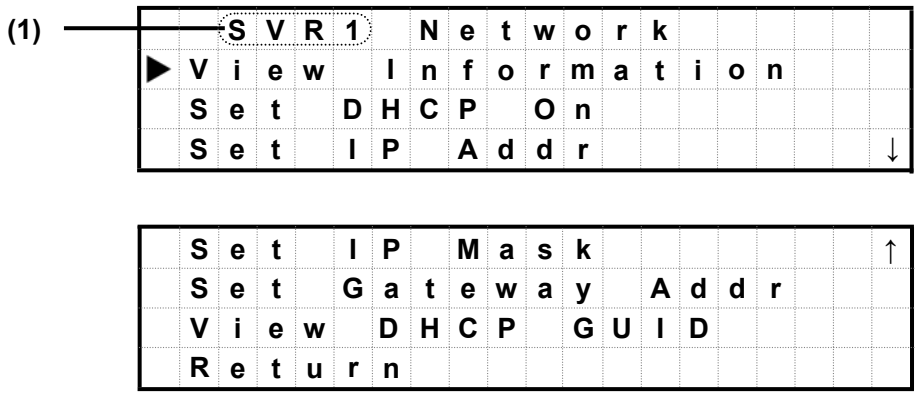
(1) Server Number **:** Server Number [1] or [2] is displayed.

- Select **"UP"** or **"Down"** button to move within **For Maintenance Menu**.
- The leftmost **"** ▶ **"** indicates the currently selected item.
- Press **"OK"** button to execute the menu item.
- Select and execute **"Return"** to return to **Server Control Menu.**

Server Menu

SVRx Network Menu

When LCD Guard Mode is set to **"Disable,"** the screen moves to **Network Menu** by selecting and executing **"SVRx Network>"** in the **Server Menu** status.



(1) Server Number **:** Server Number [1] or [2] is displayed.

• Select **"Up"** or **"Down"** button to move within **Network Menu**.

• The leftmost **"** ▶ **"** indicates the currently selected item.

• Press **"OK"** button to execute the menu item.

• Select **"Return"** to return to **Server Menu**.

IMPORTANT:

- **It will take almost 10 seconds to apply the IP address which is set newly because conflict check is done before applying it.**
- **If any confliction is detected, the new IP address will not be applied and the IP address and the subnet mask will be treated as 0.0.0.0. However the gateway address will be remained.**
- **IP addresses shown below are not available as they are already reserved within the server.**
  172.24.0.0/16
  172.16.0.0/16

IMPORTANT:

- **On the Network Menu, it is possible to change each digit of the address from 000 to 256(decimal) effectively.**

Examples)

1)Setting to 192

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button once,then it will become 190

When 190 and select "Up" button twice, then it will become 192

2)Setting to 168

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button 3 times,then it will become 170

When 170 and select "Down" button twice, then it will become 168

3)Setting to 255 or 000

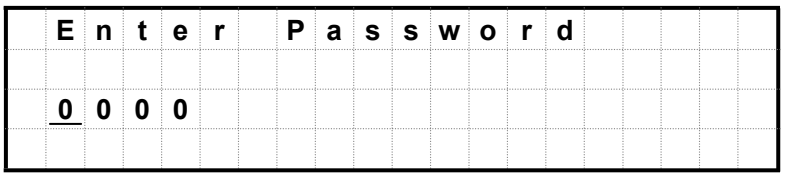
When 000 and select "Down" button once, then it will become 255

When 255 and select "Up" button once, then it will become 000

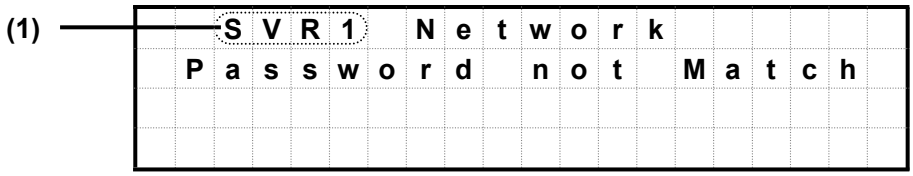
Server Menu

Network Enter Password Menu

When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"(Setting place) Network >"** in the **System or Server or Box Menu** status.



- Select **"Up"** or **"Down"** button to change numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.
- Select **"Left"** or **"Right"** to move the cursor from side to side.
- When pressing **"OK,"** the screen moves to **Network Menu** (previous page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.



(1) Server Number **:** Server Number [1] or [2] is displayed.

- When pressing **"OK"** button, it returns to **Server Menu**.

IMPORTANT:
When forgot the password, reset the SG information of the management firmware using Resource Web Console.

Server Menu

Clear All Faults:

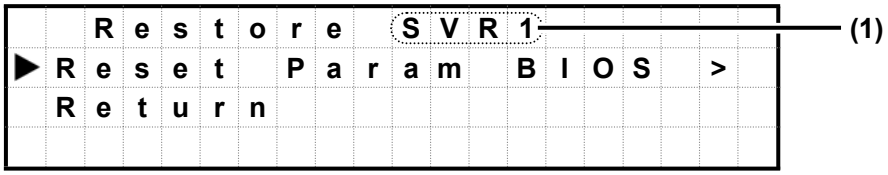
• **“Clear All Faults”** item clears Fault of HW component belonging to the applicable Server.

IMPORTANT:
This command works correctly only when the DC power is OFF.

Server Menu

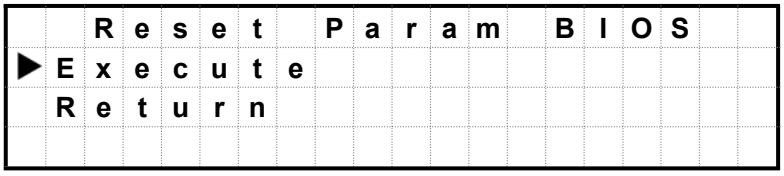
Restore Defaults Menu

When LCD Guard Mode is set to **"Disable,"** the screen moves to **Server Menu, Restore Defaults Menu** by selecting and executing **"Restore SVRx >"** in the **Server Menu** status.



(1) Server Number **:** Server Number [1] or [2] is displayed.

- Select **"Up"** or **"Down"** button to move within **Restore Defaults Menu**.
- The leftmost **"** ▶ **"** indicates the currently selected item.
- Press **"OK"** button to execute the menu item.
- Select and execute **"Return"** to return to **Server Menu**.
- When selecting and executing **"Reset Param BIOS,"** BIOS setting for the applicable Server can be restored to the factory default.
- When executing **"Reset Param BIOS," Menu** screen of the below image is displayed.



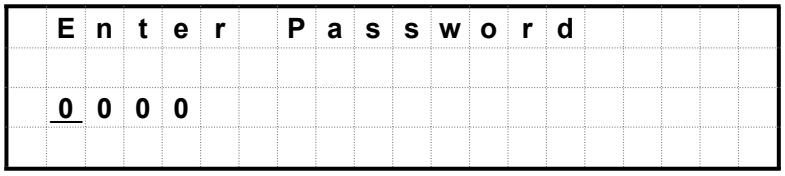
- When selecting **"Execute"** and pressing **"OK"** button, **restore defaults** is executed.
- When selecting **"Return"** and pressing **"OK"** button, **restore defaults** is not executed.

IMPORTANT:
Don't use this command,"Restore Default Memu", unless the maintenance person requests.

Server Menu

Enter Password Menu

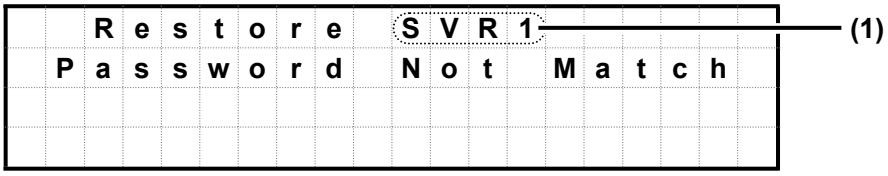
When LCD Guard Mode is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"Restore SVRx >"** in the **Server Menu** status.



- Select **"Up"** or **"Down"** button to change numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When Pressing **"OK"** button, the screen moves to **Server Menu, Restore Defaults Menu** (next page) if the entered value matches the password.
  When it does not match, **Password Not Match** screen (below image) is displayed.



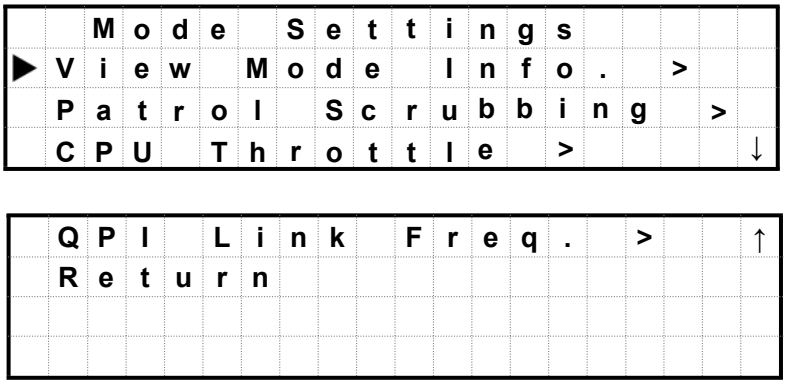
(1) Server Number **:** Server Number [1] or [2] is displayed.

- When pressing **"OK"** button, it returns to **Server Menu**.

Server Menu

Mode Settings Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **Server Menu, Mode Settings Menu** by selecting and executing **"Mode Settings>"** in the **Server Menu** status.

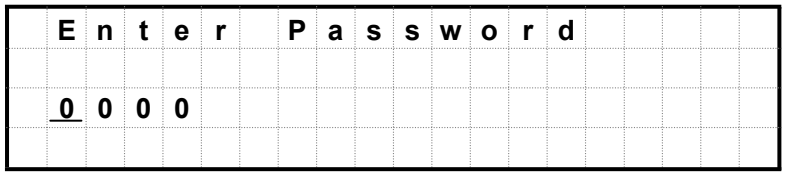


- Select **"Up"** or **"Down"** button to move within the **Mode Settings Menu.**
- The leftmost **"** ▶ **"** indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to **Server Menu.**

Server Menu

Enter Password Menu

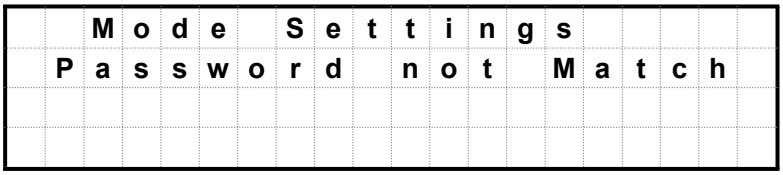
When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"Mode Settings >"** in the **System Menu** status.



- Select **"Up"** or **"Down"** button to change the numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **Server Menu, Mode Settings Menu** (previous page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.

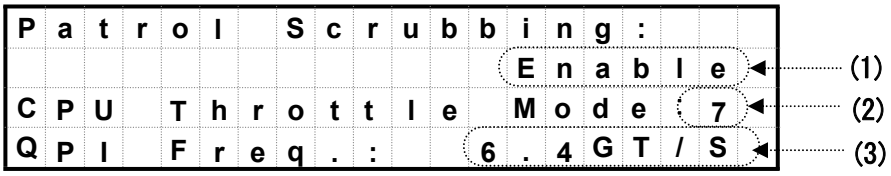


- When pressing **"OK,"** it returns to **System Menu.**

Server Menu

View Mode Information Screen

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **View Mode Information Screen** by selecting and executing **"View Mode Info. >"** in the **Mode Settings Menu** status.



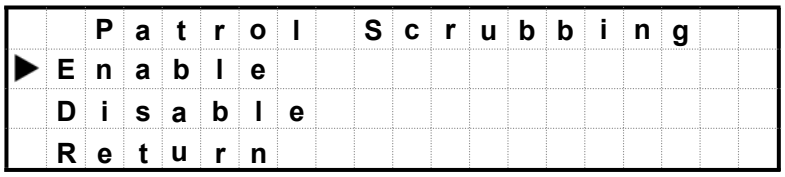
(1) Patrol Scrubbing state : Enable or Disable of the Patrol Scrubbing
(2) CPU Throttle Mode State : Setting for the conservation of electric power mode
(3) QPI Link Frequency Select state : Setting for the QPI Link frequency

• When selecting **"Return,"** it returns to **System Menu.**

Server Menu

Patrol Scrubbing Menu

The screen moves to **Patrol Scrubbing Menu** by selecting and executing **"Patrol Scrubbing >"** in the **Mode Settings Menu** status.

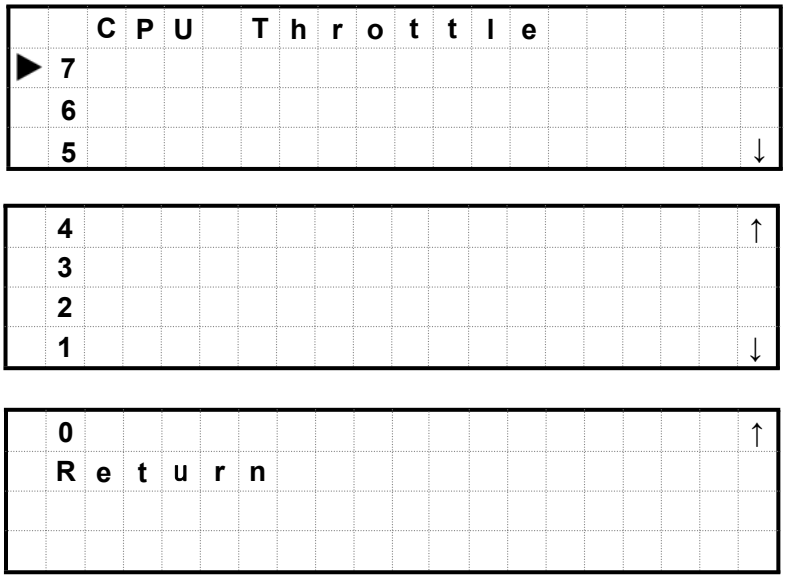


- Select **"Up"** or **"Down"** button to move within the **Mode Settings Menu.**
- The leftmost **" ▶ "** indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to **Server Menu.**
- When "Enable" or "Disable" is selected, it will be set as the setting for Patrol Scrubbing.

Server Menu

CPU Throttle Mode Menu

The screen moves to **CPU Throttle Mode Menu** by selecting and executing **"CPU Throttle >"** in the **Mode Settings Menu** status.

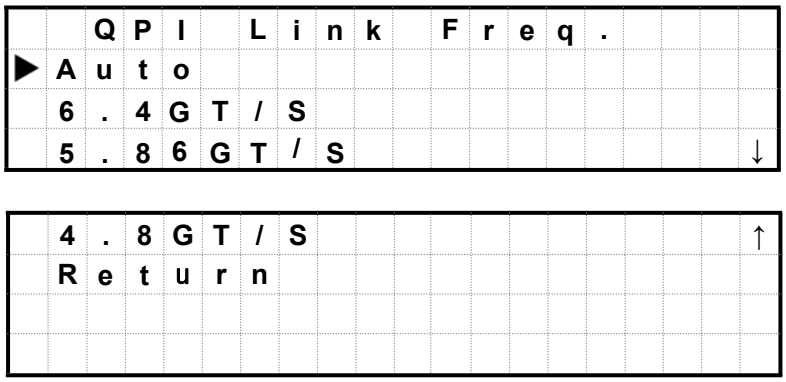


- Select **"Up"** or **"Down"** button to move within the **Mode Settings Menu.**
- The leftmost **" ▶ "** indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to **Server Menu.**
- When any of "7" - "0" is selected, it will be set as the setting for CPU Throttle Mode.

Server Menu

QPI Link Frequency Menu

The screen moves to **QPI Link Frequency Menu** by selecting and executing **"QPI Link Freq. >"** in the **Mode Settings Menu** status.

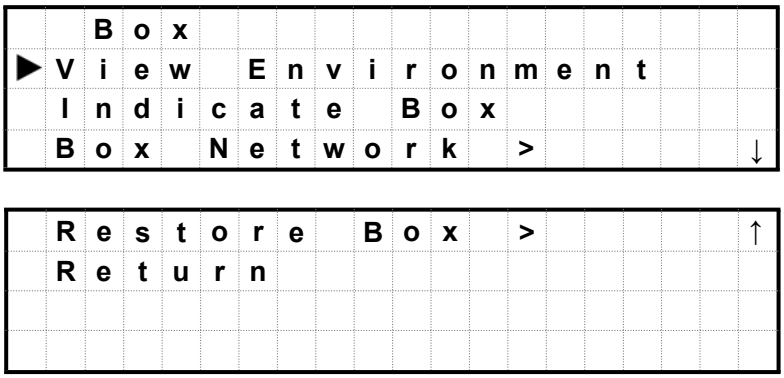


- Select **"Up"** or **"Down"** button to move within the **Mode Settings Menu.**
- The leftmost **" ▶ "** indicates the currently selected item.
- Press **"OK"** to execute the menu item.
- When selecting **"Return,"** it returns to **Server Menu.**
- When "Auto" , "6.4GT/S", "5.86GT/S" or "4.8GT/S" is selected, it will be set as the setting for QPI Link Frequency.

Box Menu

Display Format for Box Menu

When selecting and executing **"Box >"** in the **Main Menu** status, the screen moves to **Box Menu**.



• Select **"Up"** or **"Down"** button to move within **Box Menu**.

• The leftmost " ► " display indicates the currently selected item.

• Press **"OK"** to select **Menu**.

• When executing **"Return,"** the screen returns to **Main Menu**.

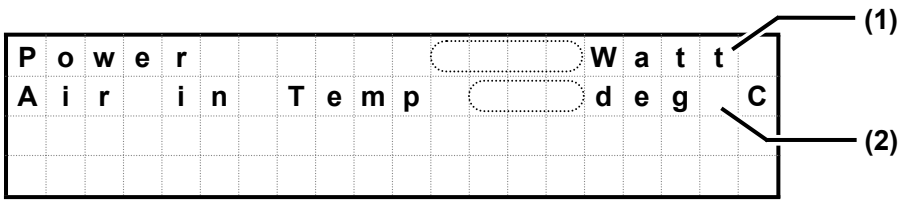
• When executing **"Indicate Box,"** LCD Backlight of Box and ID LED of Box Rear light.

* ID LED can be lit with this item.
To release the light of ID LED, press the ID button on the front or rear of the server.
Or operate "Hardware Locator" of Web Console.

Box Menu

View Environment Screen

When selecting and executing **"View Environment"** in the **Main Menu** status, the screen moves to **View Environment** screen.



• The following information is displayed.

(1) Power Consumption **: Amount of** power consumption amount (actual measurement value) [W] is displayed.

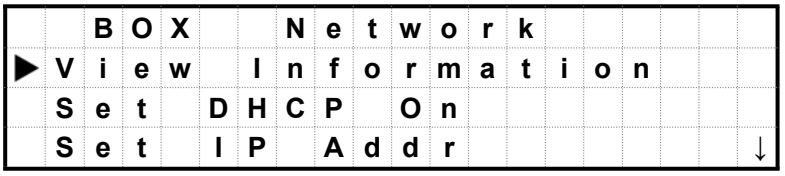
(2) Air in Temperature **:** Intake air temperature [°C] is displayed.

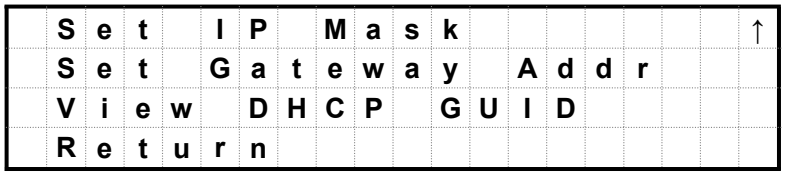
• Press **"OK"** button to return to **Main Menu**.

Box Menu

Box Network Menu

When **LCD Guard Mode** is set to **"Disable,"** the screen moves to **Network Menu** by selecting and executing **"Box Network>"** in the **Box Menu** status.





• Select **"Up"** or **"Down"** button to move within **Network Menu**.

• The leftmost "► " indicates the currently selected item.

• Press **"OK"** to execute the menu item.

• Select **"Return"** to return to **Box Menu**.

IMPORTANT:

- **It will take almost 10 seconds to apply the IP address which is set newly because conflict check is done before applying it.**
- **If any confliction is detected, the new IP address will not be applied and the IP address and the subnet mask will be treated as 0.0.0.0. However the gateway address will be remained.**
- **IP addresses shown below are not available as they are already reserved within the server .**
  172. 24. 0. 0/16
  172. 16. 0. 0/16

IMPORTANT:

- **On the Network Menu, it is possible to change each digit of the address from 000 to 256(decimal) effectively.**

Examples)

1)Setting to 192

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button once,then it will become 190

When 190 and select "Up" button twice, then it will become 192

2)Setting to 168

When 000 and select "Up" button twice, then it will become 200

When 200 and select "Down" button 3 times,then it will become 170

When 170 and select "Down" button twice, then it will become 168

3)Setting to 255 or 000

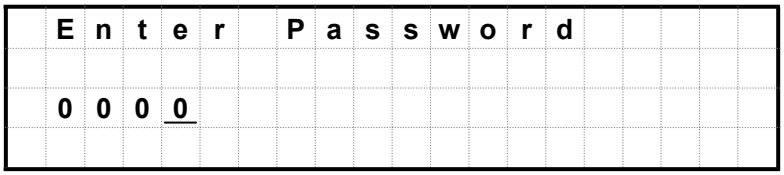
When 000 and select "Down" button once, then it will become 255

When 255 and select "Up" button once, then it will become 000

Box Menu

Network Enter Password Menu

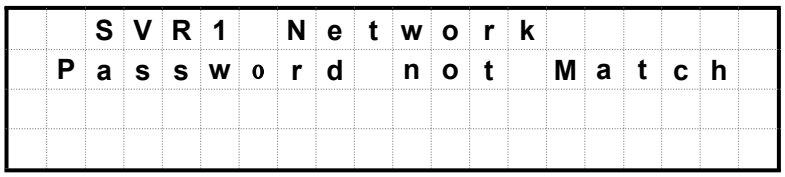
When **LCD Guard Mode** is set to **"Enable,"** the screen moves to **Enter Password Menu** by selecting and executing **"(Setting place) Network >"** in the **System or Server or Box Menu** status.



- Select **"Up"** or **"Down"** button to change numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** to move the cursor from side to side.

- When pressing **"OK"** button, the screen moves to **Network Menu** (previous page) when the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.

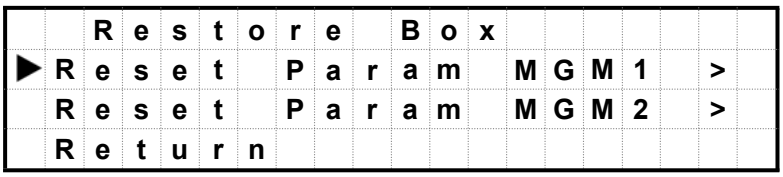


- When pressing **"OK"** button, it returns to **System or Server or Box Menu**.

Box Menu

Restore Defaults Menu

When LCD Guard Mode is set to **"Disable,"** the screen moves to **Box Menu**, **Restore Defaults Menu** by selecting and executing **"Restore Box >"** in the **Box Menu** status.



- Select **"Up"** or **"Down"** button to move within **Restore Defaults Menu**.

- The leftmost **"▶"** indicates the currently selected item.

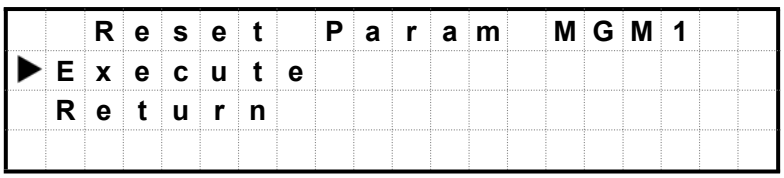
- Press **"OK"** to execute the menu item.

- Only either of MGMs is displayed for **"Reset Param MGM1"** or **"Reset Param MGM2"** item. When executing **"Reset Param MGM2"** with **"Reset Param MGM1"** selected, MGM1 is reset. **"Reset Param MGM2"** becomes selectable in Restore Defaults Menu after EXPRESSSCOPE® Monitor is down and the main screen is displayed again.

- When selecting and executing **"Reset Param MGM1"** or **"Reset Param MGM2,"** the MGM setting restores to the factory default. The selected MGM is reset as a result.
  Assumed situation is that the MGM is unable to operate cooperatively with other MGM when it is added or replaced for maintenance.

- Select and execute **"Return"** to return to **Box Menu**.

- Menu of the below image is displayed when selecting and executing **"Reset Param MGM1,"** **"Reset Param MGM2"** or **"Reset Param Box."**



- When selecting and executing **"Execute,"** restore defaults is performed and Management Firmware is reset afterward.

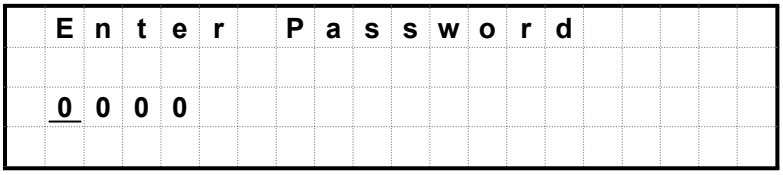
- When selecting and executing **“Return,”** restore defaults is not performed.

IMPORTANT:
Don’t use this command,”Restore Default Memu”, unless the maintenance person requests.

Box Menu

Enter Password Menu

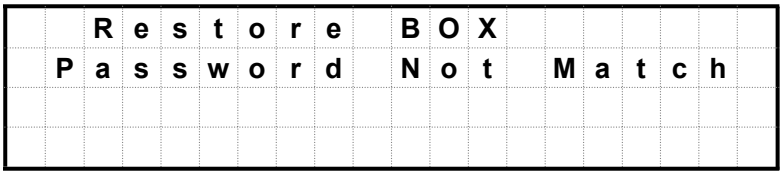
When LCD Guard Mode is set to **"Enable,"** the screen moves to **Enter Password Menu** by executing **"Restore Box >"** in the **Box Menu** status.



- Select **"Up"** or **"Down"** button to change numbers on the cursor one by one in the range from 0 to 9. Default value is set to All 0.

- Select **"Left"** or **"Right"** button to move the cursor from side to side.

- When pressing **"OK,"** the screen moves to **Box Menu. Restore Defaults Menu** (previous page) if the entered value matches the password. When it does not match, **Password Not Match** screen (below image) is displayed.



- Press **"OK"** to return to **Box Menu**.

Setting Network

It is required to set the network (the following (1), (2), (3)) for system, server and resource (BOX) from EXPRESSSCOPE® Monitor to connect to each Web Console (refer to ”NEC EXPRESSSCOPE® Monitor”).

(1) Setting Network address for System Web Console

[System]->[SYS Network]->[Set IP Addr / Set IP Mask / Set Gateway Addr]

(2) Setting Network address for Server Web Console

[Server x]->[SVRx Network]->[Set IP Addr / Set IP Mask / Set Gateway Addr]

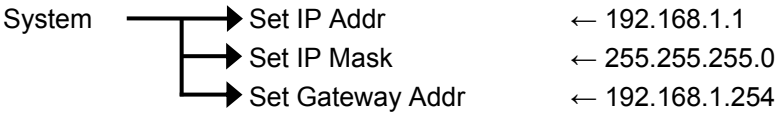
(3) Setting Network address for Resource Web Console

[Box]->[Box Network]->[Set IP Addr / Set IP Mask / Set Gateway Addr]

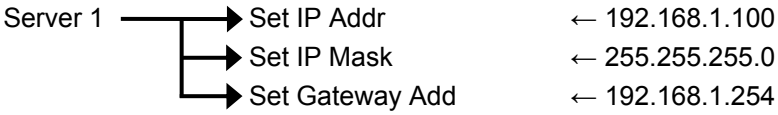
IMPORTANT:

- **Set the address of IP Addr/IP Mask/Gateway Addr within the network of the same segment.**
- **Set an arbitrary unused address for Gateway Addr even if Gateway does not exist. It is not possible to disable the Gateway Addr.**
- **Change all IP addresses regarding the system, the server and the resource network address by using the EXPRESSSCOPE(R) monitor when changing the subnet of the IP address. If some different subnet masks exist, it is impossible to do network access for BMC at all.**
- **When setting a network, conflict check of IP address is executed for 10-20 seconds. During the check it is not possible to set the other network newly. Wait for a moment until the check is done.**
- **While setting the network or operating the system, the conflict check of IP address is executed periodically. If any confliction is detected, the IP address and its IP mask will be treated as invalid,=0.0.0.0. After removing the factor of the confliction, set the network again.**
- **If the management firmware rebooted, the cause might be the flooding, broadcast storming, on the LAN network to which the MGM is connected.**
- **If the management firmware detected the flooding, broadcast storming, the management firmware reboots itself. During the reboot,may take 3 minutes, it is impossible to boot the system or handle any errors and failures.**

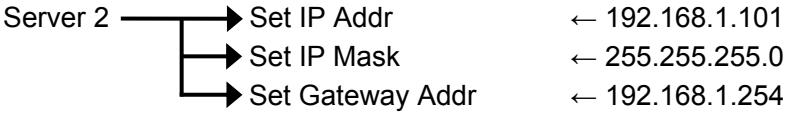
(1) Network Address for System Web Console



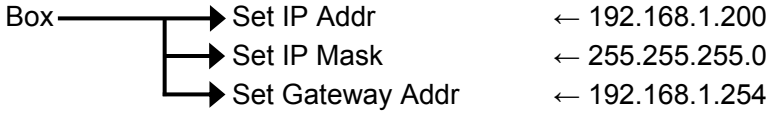
(2) Network Address for Server Web Console



• When Server 2 exists in **A1080a-D** model



(3) Network Address for Resource Web Console



* The above address is the factory-default value. When multiple servers exist, set the appropriate address according to the environment to avoid duplicated addresses.

IMPORTANT:
IP addresses shown below are not available as they are already reserved within the server.
The server having the following IP addresses cannot access to the system of this server via the router (L3SW).

- **172.24.0.0/16 (172.24.0.0 ~ 172.24.255.255)**
- **172.16.0.0/16 (172.16.0.0 ~ 172.16.255.255)**

IMPORTANT:

- **On the Network Menu, it is possible to change each digit of the address from 000 to 256(decimal) effectively.**

Examples)

1)Setting to 192

When 000 and select "Up" button twice, then it will become 200
When 200 and select "Down" button once,then it will become 190
When 190 and select "Up" button twice, then it will become 192

2)Setting to 168

When 000 and select "Up" button twice, then it will become 200
When 200 and select "Down" button 3 times,then it will become 170
When 170 and select "Down" button twice, then it will become 168

3)Setting to 255 or 000

When 000 and select "Down" button once, then it will become 255
When 255 and select "Up" button once, then it will become 000

Ports to be used

NEC EXPRESSSCOPE® Engine SP2 uses the port listed below according to each purpose. If the network environment is using firewall, then it is also needed to correspond the firewall.

Port Number	Type	Protocol	Direction
22	TCP	SSH	IN
23	TCP	TELNET	IN
5120	TCP	vKVM	IN
5123	TCP	vKVM	IN
7578	TCP	vKVM	IN
80	TCP	HTTP	IN
443	TCP	HTTPS	IN
623	UDP	RMCP	IN
67	UDP	DHCP	OUT
69	UDP	TFTP	IN
10069	UDP	TFTP	IN
123	UDP	NTP	OUT
25 (*1)	TCP	SMTP	OUT
162	UDP	SNMPTRAP	OUT

*1: Go to [Web console] - [Alert Management] to change the port number. (See the Chapter [Web Console Function])

Force Dump

Dump and collect the memory contents.
Refer to the notes described below to perform this operation.

- Setting is required for each type of OS to collect memory dump. Refer to **"Software"** for details.

- Consult with maintenance personnel of the maintenance service company when collecting dump. Performing collection when the server is operating properly may affect the system operation.

- Although a message indicating virtual memory shortage may be displayed when restarting after the failure occurrence, continue to start the server. Data may not be dumped properly when performing the reset in the middle.

- Request the appropriate support service provider conforming to the support agreement for analyzing the collected memory dump.

- Execute the following with EXPRESSSCOPE® Monitor for procedure of collecting dump.

  [Server x]->[SVRx Control]->[SVRx For Maint]->[SVRx Force Dump]->[Execute]

BIOS Setup

This section describes how to set the Basic Input Output System (BIOS).

When installing this server or adding/removing options, understand the descriptions provided here thoroughly to perform the setting properly.

System BIOS -SETUP-

SETUP is a utility to set the basic hardware of this server. This utility can be executed without the dedicated utility as it is installed as a standard in the flash memory of this server.

It is usually unnecessary to use SETUP as the contents to be set with SETUP are set to the most standard and optimal state for this server before shipment. Use SETUP as necessary for the following cases.
Depending on the OS, BIOS settings are needed to be changed from the default settings. Referring to appendix C “Settings for each OS”, change the BIOS settings so that it is suitable for the OS which is being installed.

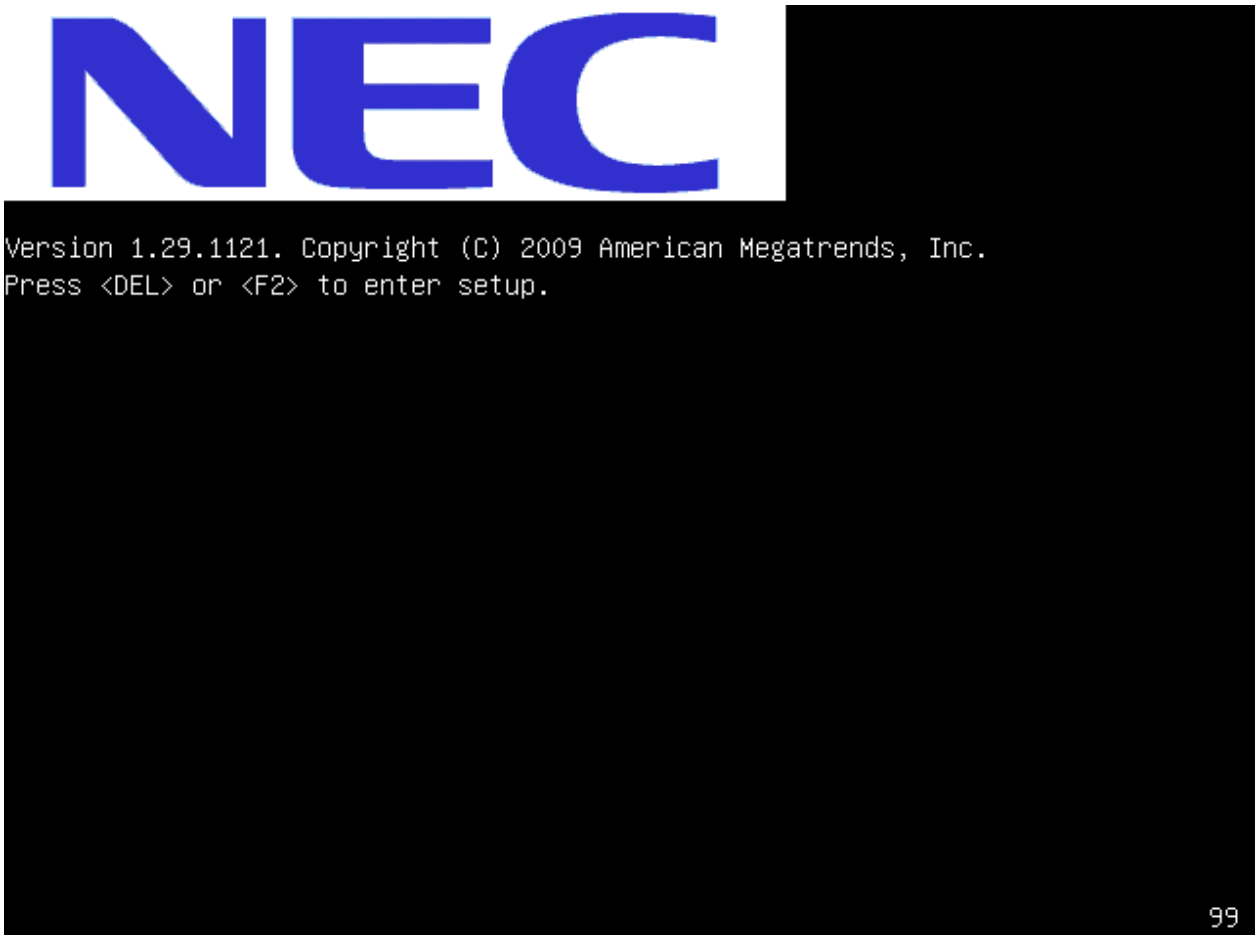
IMPORTANT:
- **SETUP operation should be performed by a system administrator.**
- **Password can be set in the SETUP operation. There are 2 levels of passwords, “Supervisor” and “User”. All the items can be changed when accessing SETUP with a “Supervisor” level password.**
  When a “Supervisor” password is set, the items whose settings are changeable with “User” level password are limited.
- **Do not set a password before installing OS (Operating System).**
- **Some items (menu) are not specifically explained in this Guide. These items are set to the optimal parameter for operation before shipment. Do not change the items whose explanations are not given in this Guide. Proper operation of this server cannot be guaranteed or it may cause failure of this server.**
- **The latest version of BIOS utility is installed in this server. Thus, the screen for settings may differ from the contents explained in this Guide. For setting items, refer to online help or contact the maintenance service company.**

Starting

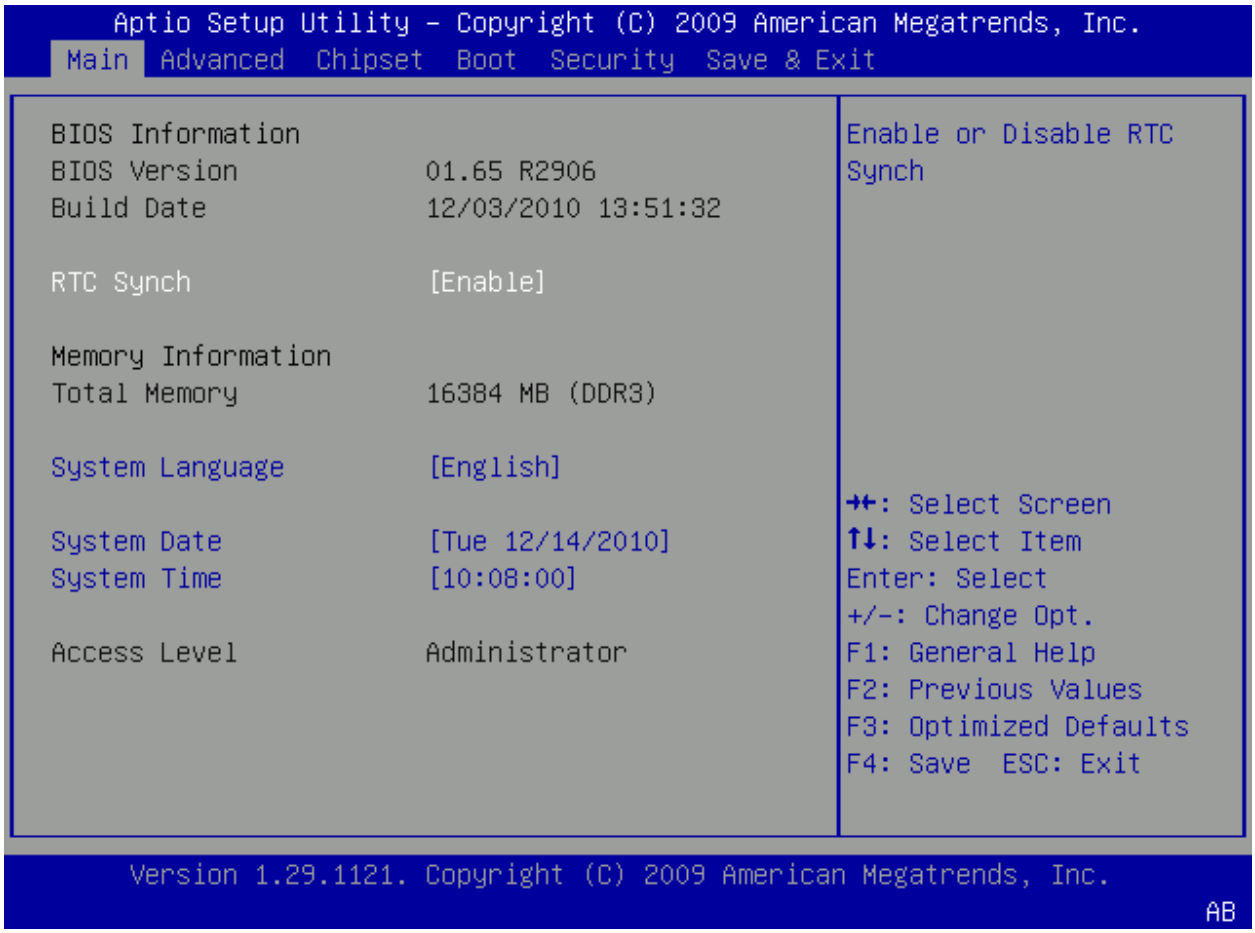
Start SETUP by following the procedure below.

1. Power on the server.

2. When the following screen (NEC logo and “Press <DEL> or <F2> to enter setup”) is displayed, press <DEL> key or <F2> key.



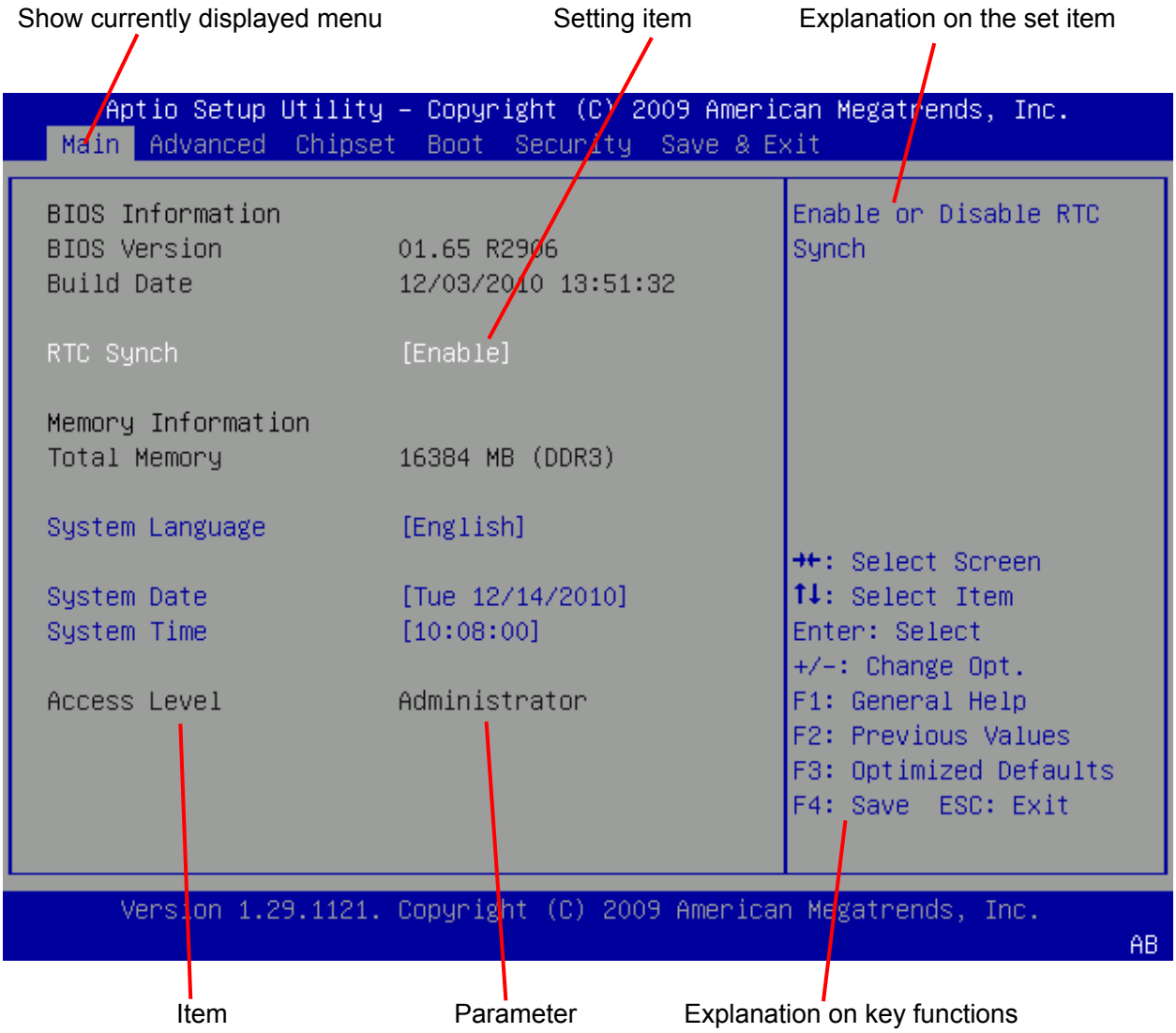
3. **BIOS Menu** screen is displayed.



Descriptions on Key and Screen

This section describes the basic key operation on BIOS of this server and the display of BIOS screen.

Operate SETUP by using the following keys on the keyboard.



Cursor key (↑, ↓)	Select the item displayed on the screen. The item displayed in inverted characters is the currently selected item.
Cursor key (<-, ->)	Select the menu such as Main, Advanced, Chipset, Boot, Security, and Save&Exit.
<-> key, <+> key	Change the value (parameter) of the selected item. This key is invalid when sub menu (the item with " ▶ " at the beginning) is selected.
<Enter> key	Press this key to confirm the selected parameter.
<Esc> key	Return to the previous screen.
<F1> key	Press this key when any questions arise during SETUP operation. Help screen

for SETUP operation is displayed. Return to the original screen by pressing <Esc> key.

<F2>key	Restore setting contents of SETUP to the state before saving.
<F3>key	Restore setting contents of SETUP to the factory default setting.
<F4>key	Save the setting contents of SETUP and close SETUP.

Parameters and Descriptions

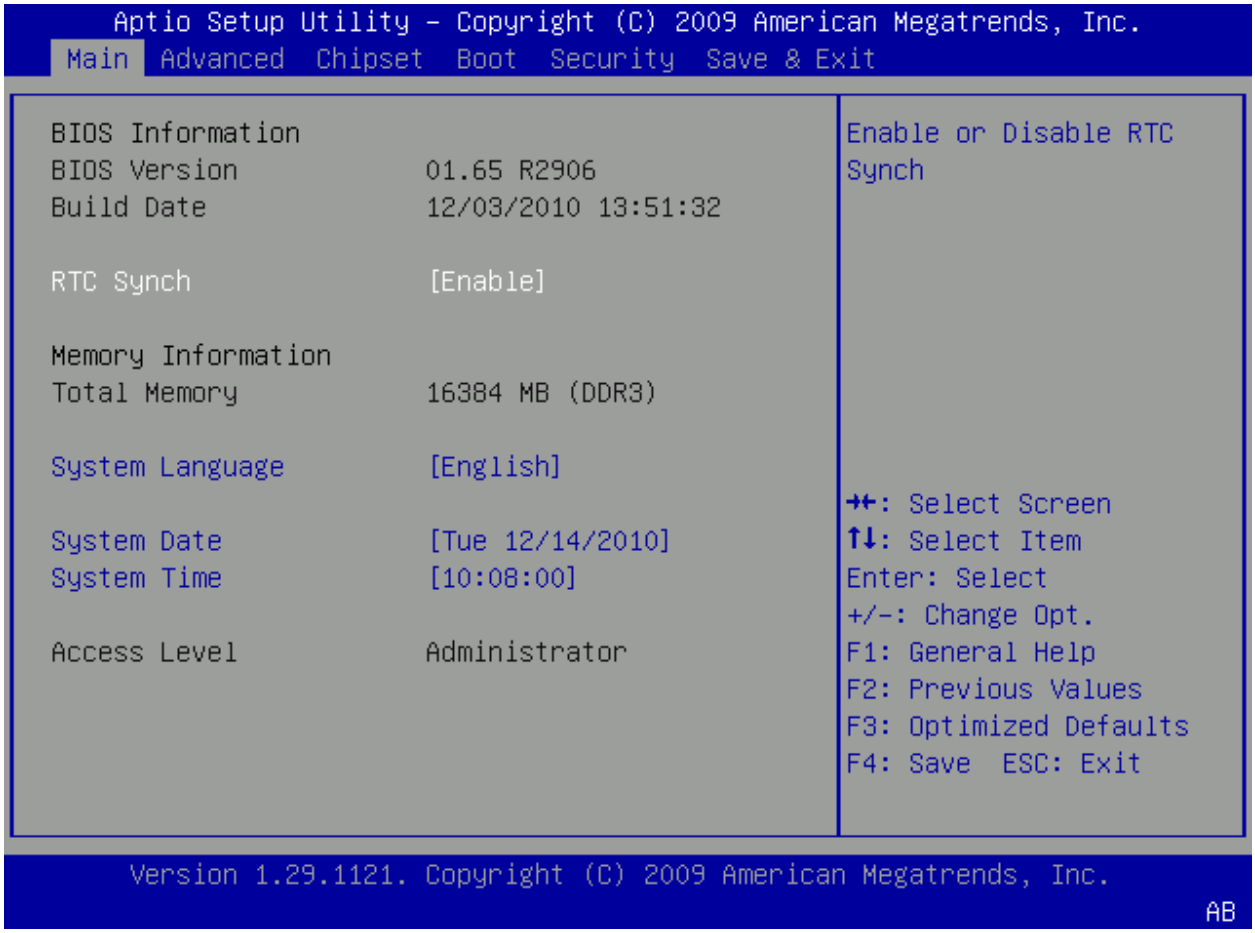
There are seven main types of Setup.

- Main Menu (->Main Menu)
- Advanced Menu (->Advanced Menu)
- Chipset Menu (->Chipset)
- Boot Menu (->Boot)
- Security Menu (->Security)
- Save & Exit Menu (->Save & Exit)

Detailed setting of a function is available by selecting sub menu from the above menu. The section below describes the function and parameters settable per menu displayed on the screen and the factory default.

Main Menu

The **Main menu** is displayed first when starting SETUP. For the menu with " ▶ " at the beginning, sub menu is displayed by selecting it and pressing the <Enter> key.



The items settable on the **Main menu** screen and their functions are described as below.

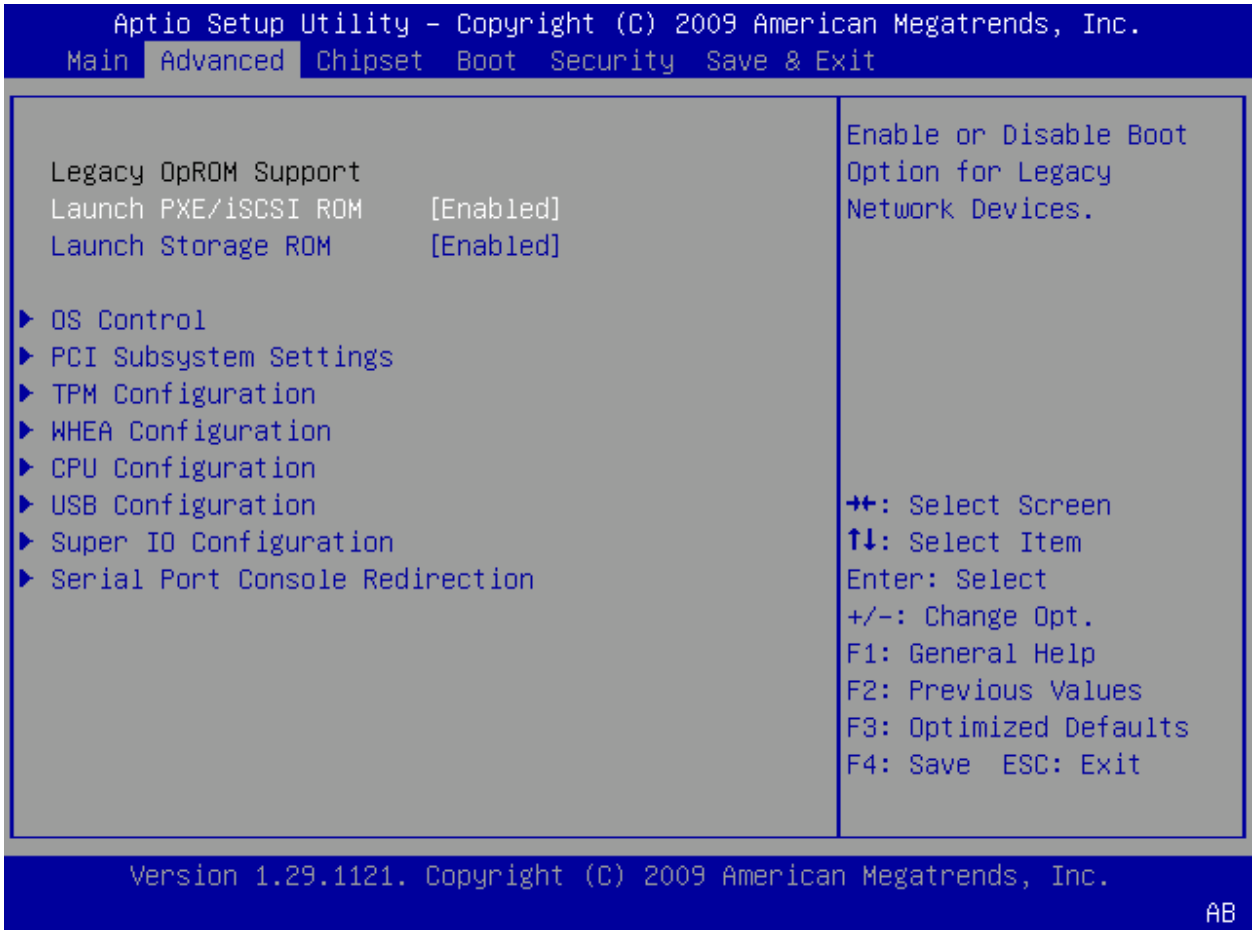
Item	Parameter	Description
BIOS Version	-	Display current BIOS version (display only).
Build Date	-	Display current BIOS compile time (display only).
RTC Synch	Disable [Enable]	Set whether or not to synchronize the Service Processor date (set with remote control) to the system date (set by BIOS). When **Enable** is set, the system date is reflected to Service Processor date at OS Boot, etc. (It is not reflected until booted).
Total Memory	-	Display the mounted memory capacity (display only).
System Language	[English]	Display the language to be displayed for SETUP (display only).
System Date	-	Set system date.
System Time	-	Set system time.
Access Level	-	Display the current access level (display only).

[ ]: Factory default

Advanced Menu

Advanced menu is displayed by moving the cursor to the position of **"Advanced."**

For the menu with " ▶ " at the beginning, sub menu is displayed by selecting it and pressing <Enter> key.
TPM Configuration is displayed only when the model supports TPM,Trusted Platform Module.



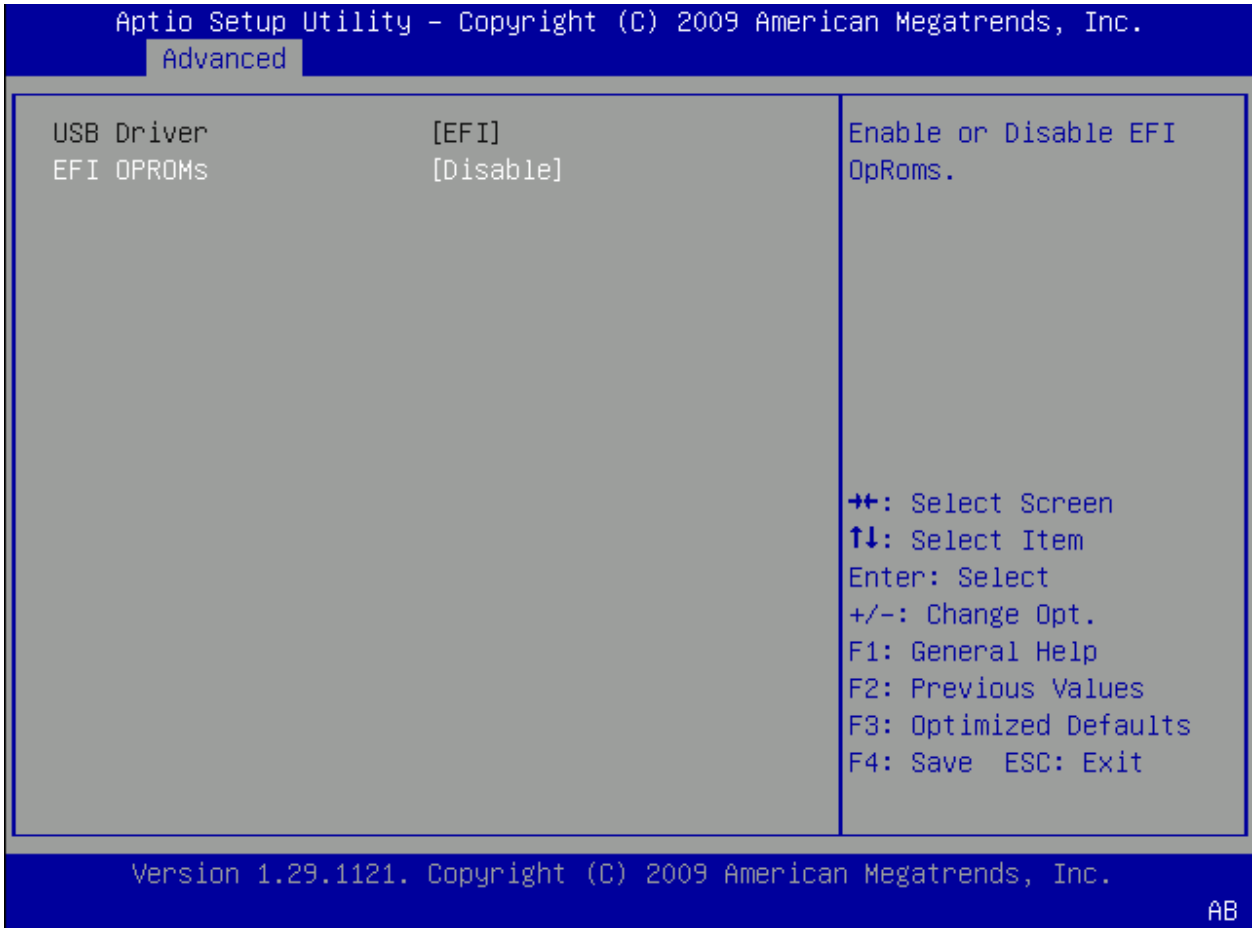
Refer to the following table for the items.

Item	Parameter	Description
Launch PXE /iSCSI ROM	Disable [Enable]	Set Disable/Enable for BIOS expansion of legacy network device.
Launch Storage ROM	Disable [Enable]	Set Disable/Enable for BIOS expansion of legacy high-capacity storage device.

[ ]: Factory default

OS Control

The following screen is displayed by selecting **"OS Control"** in **Advanced Menu**.



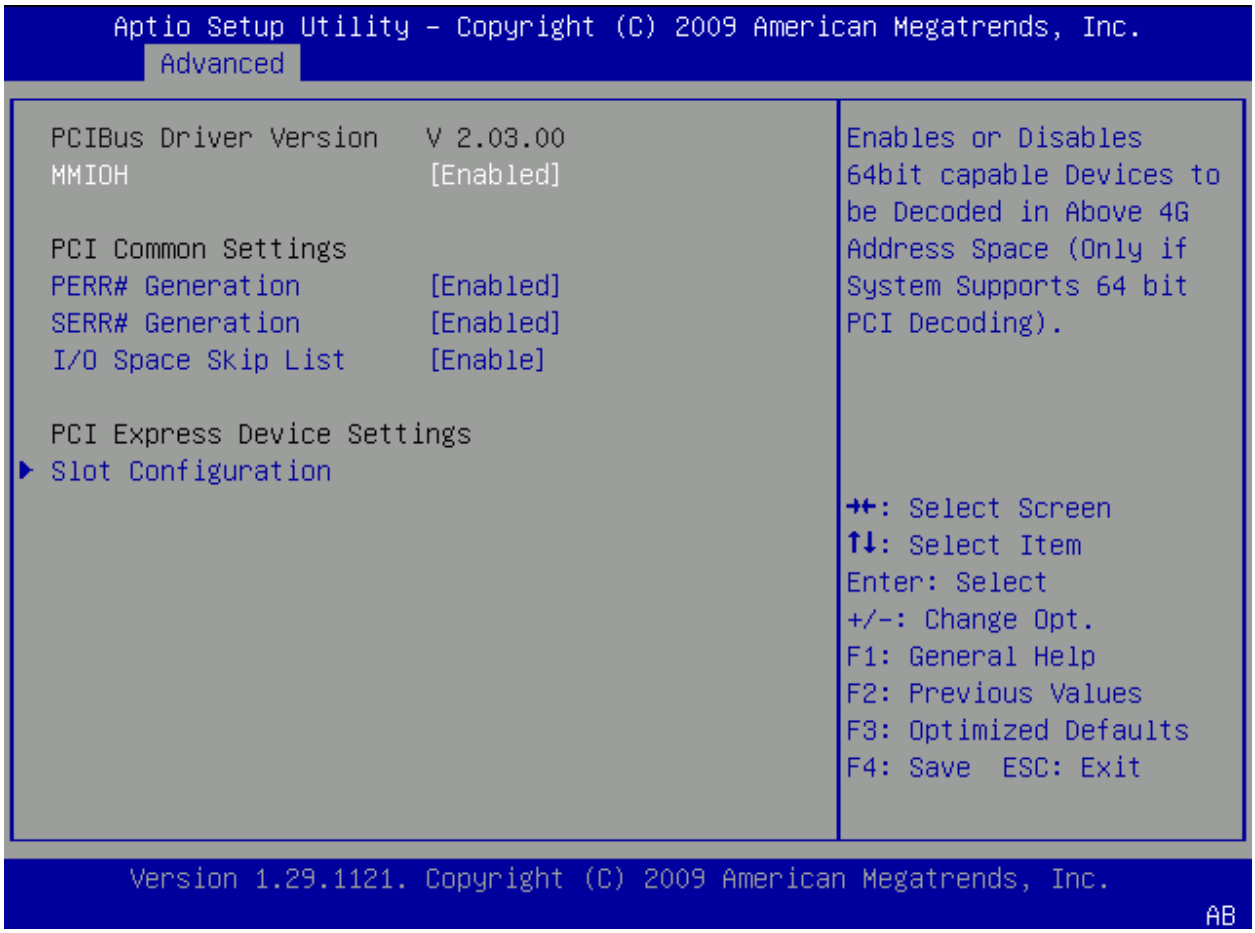
Refer to the following table for the items.

Item	Parameter	Description
USB Driver	[EFI] Legacy	When selecting EFI, USB can be used on EFI-aware OS and the firmware update can be performed by accessing the USB high-capacity storage device from EFI Shell. When selecting Legacy, USB keyboard can be used on non-EFI-aware OS. (Always Disable) (display only)
EFI OPROMs	[Disable] Enable	Set Disable/Enable for BIOS expansion of EFI Option ROM.

[ ]: Factory default

PCI Subsystem Settings

The following screen is displayed by selecting **"PCI Subsystem Settings"** in **Advanced Menu**.



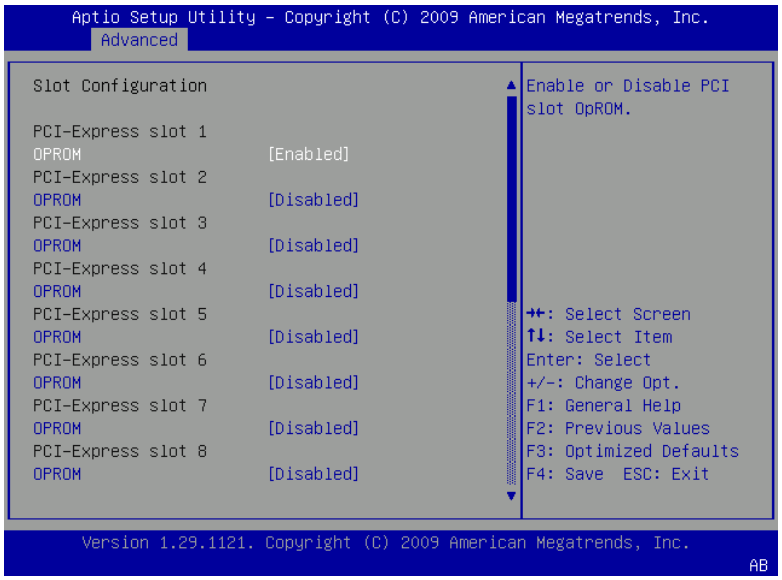
Refer to the following table for the items.

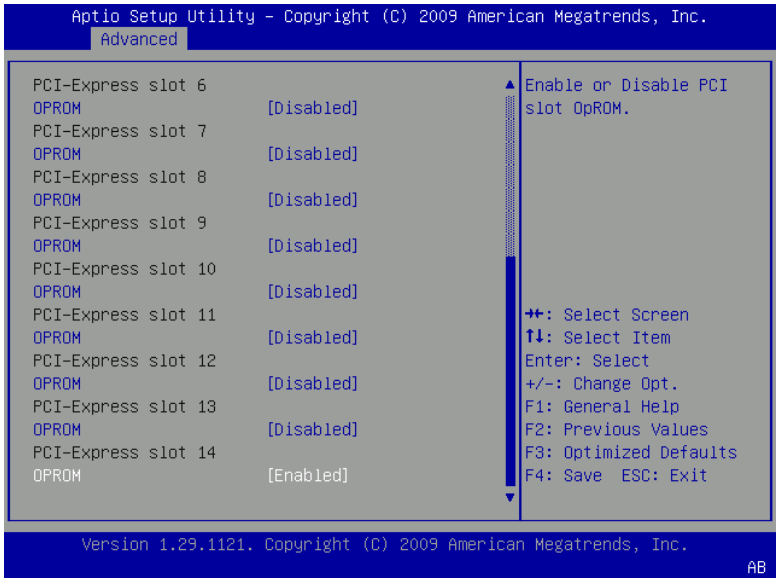
Item	Parameter	Description
Pci Bus Driver Version	-	Display the PCI bus driver version. (display only)
MMIOH	Disable [Enable]	Set Disable/Enable Memory Mapped I/O Space,over 4GB
PERR# Generation	Disable [Enable]	Set Disable/Enable parity error occurrence of PCI device.
SERR# Generation	Disable [Enable]	Set Disable/Enable system error occurrence of PCI device.
I/O Space Skip List	[Enable] Disable	Set Disable/Enable skipping I/O space for the PCI slot in which Intel Ether card is put. If Enable, I/O space is not assigned (SKIPPED) for the PCI slot.

[ ]: Factory default

Slot Configuration

The following screen is displayed by selecting **"Slot Configuration"** in **Subsystem Settings Menu**.
Seven slots are displayed for **A1080a-S/A1080a-D** model and 14 slots are displayed for **A1080a-E** model. The following image explains in the case of A1080a-E model.





Refer to the following table for the items.

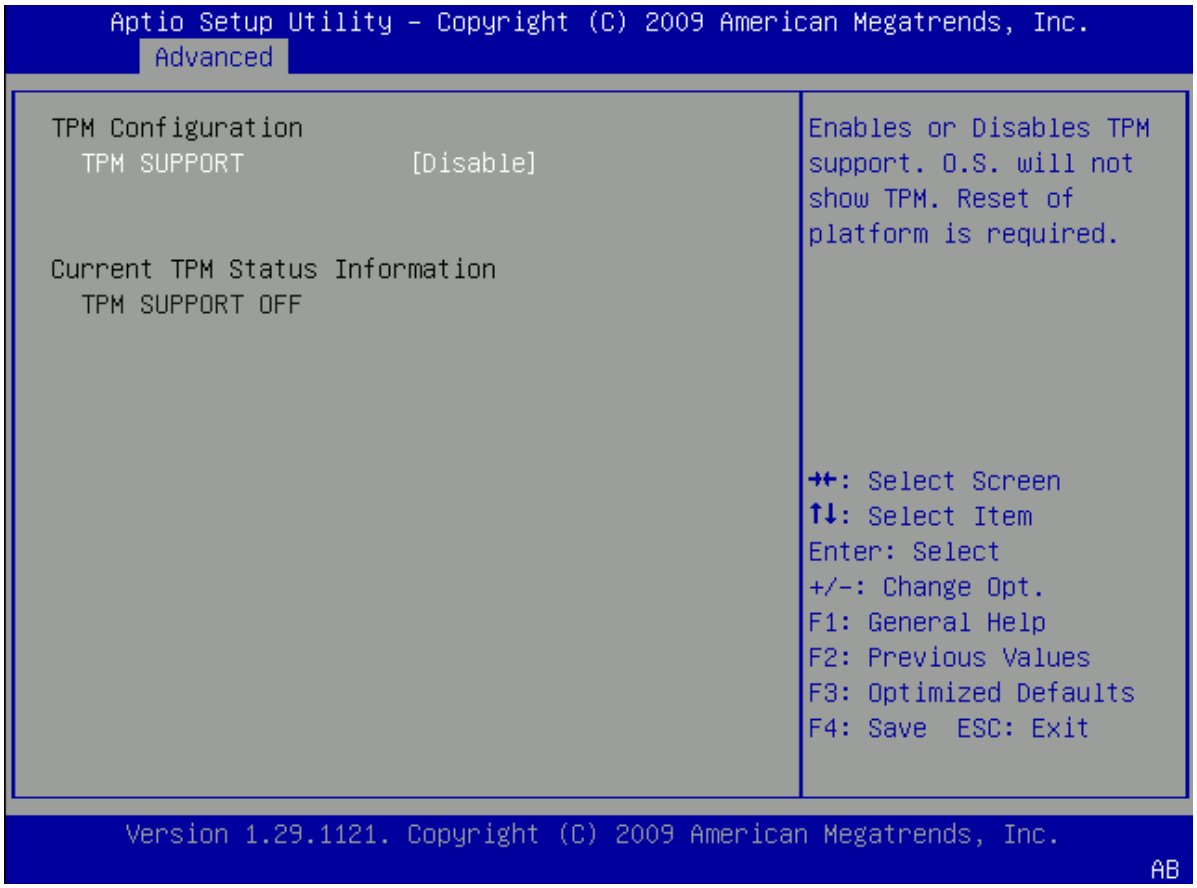
Item	Parameter	Description
PCI-Express slot 1 ~ 14 OPROM	[Disable] Enable (Note 1)	Set Disable/Enable for BIOS installed in the device (board) connected to PCI bus.

[ ]: Factory default

(Note 1) **"Enable"** is set only for slot 1 and slot 14 at factory shipment.

TPM Configuration

The following screen is displayed by selecting **"TPM Configuration"** in **Subsystem Settings Menu**. It is available only when the model supports TPM,Trusted Platform Module.



Refer to the following table for the items.

Item	Parameter	Description
TPM SUPPORT (Note 1)	[Disable] Enable	Set Disable/Enable for TPM (Trusted Platform Module) function.
TPM State (Note 1)(Note 2)	[Disable] Enable	Set Disable/Enable for TPM operation
Pending TPM operation (Note 3)	[None] Enable Take Ownership Disable Take Ownership TPM Clear	Set Disable/Enable for the schedule of TPM operation. This specify the command which will be issued at next boot
TPM Enabled Status	-	Display the setting for TPM function (display only)

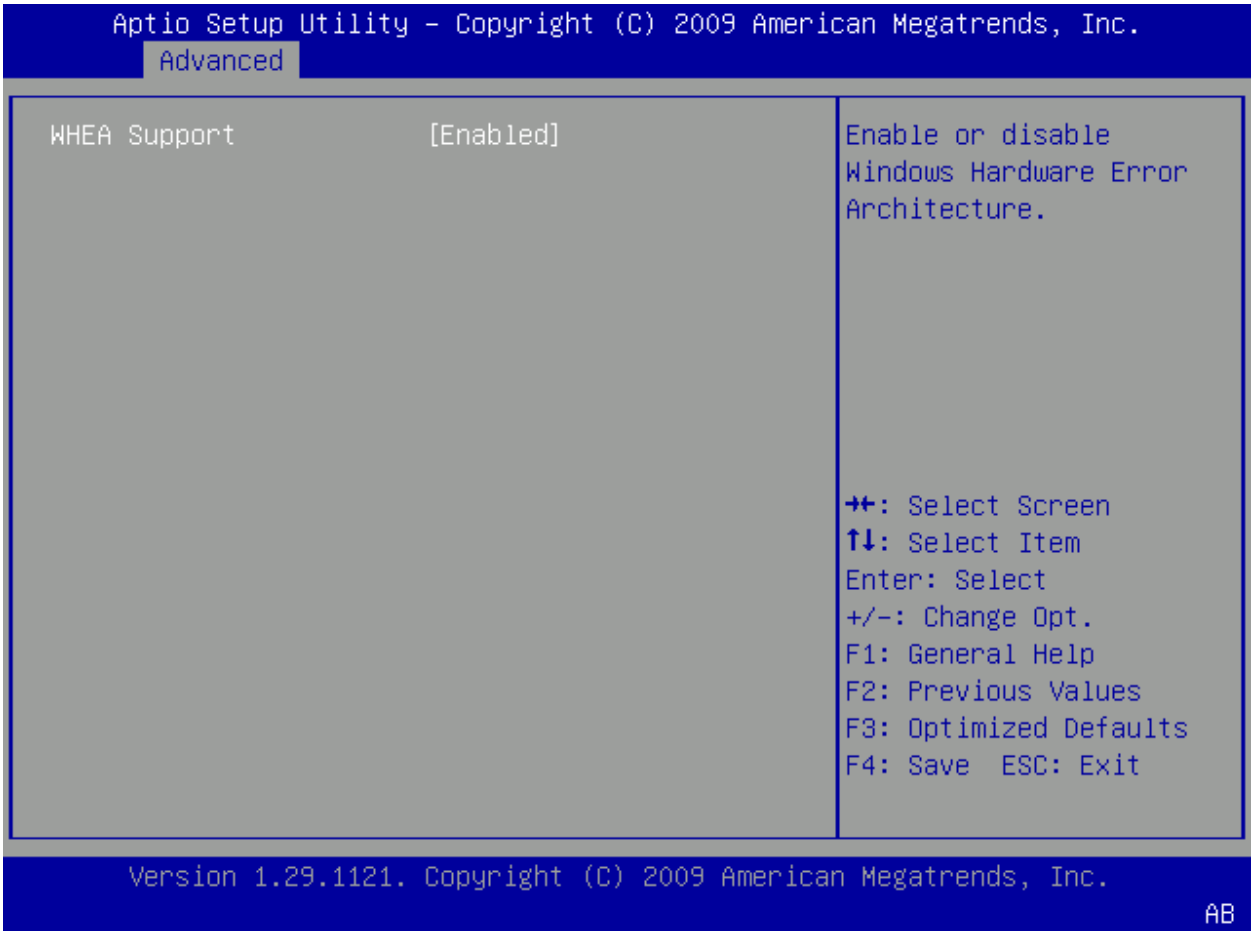
TPM Active Status	-	Display the activation status for TPM (display only)
TPM Owner Status	-	Display the ownership for TPM (display only)

[ ]: Factory default

(Note 1) The parameter is selectable when Administrator privilege exists
(Note 2) The parameter is selectable when “TPM SUPPORT “ is set to “Enable”
(Note 3) The parameter is selectable when “TPM State“ is set to “Enable”

WHEA Configuration

The following screen is displayed by selecting **"WHEA Configuration"** in **Advanced Menu**.



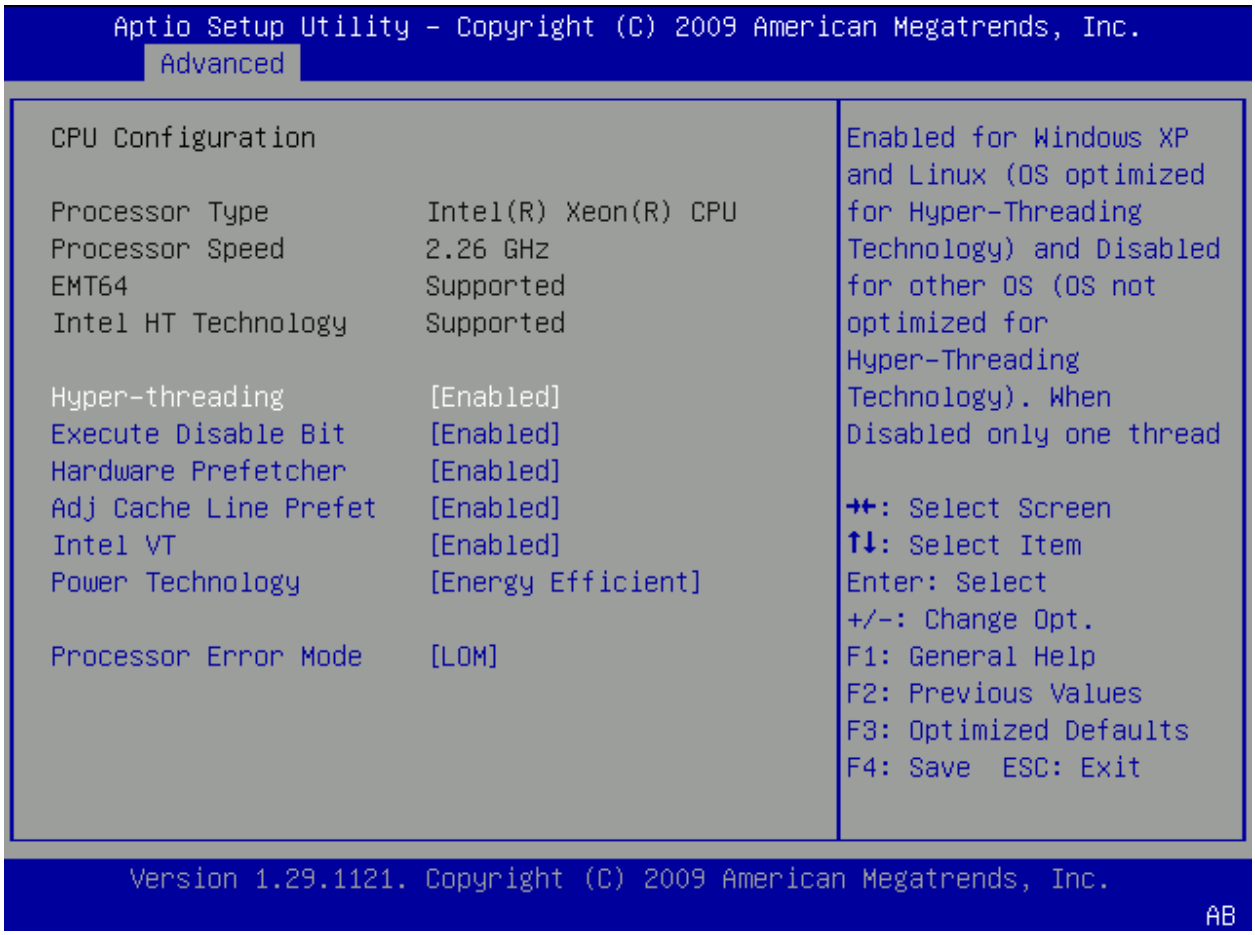
Refer to the following table for the items.

Item	Parameter	Description
WHEA Support	Disable [Enable]	Set Disable/Enable for WHEA (Windows Hardware Error Architecture) function.

[ ]: Factory default

CPU Configuration

The following screen is displayed by selecting **"CPU Configuration"** in **Advanced Menu**.



Refer to the following table for the items.

Item	Parameter	Description
Processor Type	-	
Processor Speed	-	Display clock speed of the embedded processor (display only).
EMT64	-	Display support availability for EMT64 function of the embedded processor (display only).
Intel HT Technology	-	Display support availability for Intel Hyper Threading Technology function of the embedded processor (display only).

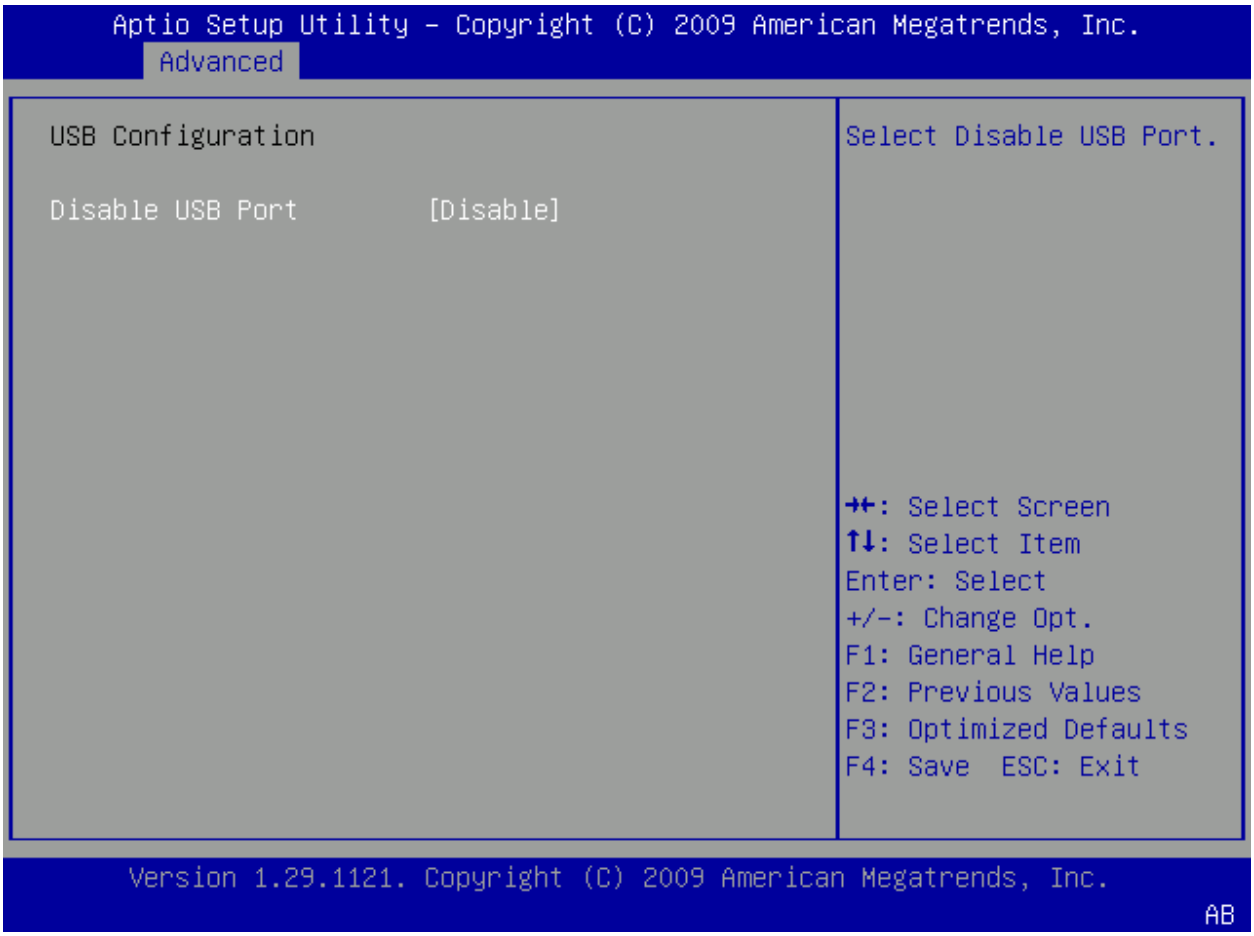
Hyper-threading (Note 3)	Disable [Enable]	Set Disable/Enable for Intel® Hyper Threading Technology function of the processor.
Execute Disable Bit	Disable [Enable]	Set Disable/Enable for Execute Disable Bit of the processor.
Hardware Prefetcher	Disable [Enable]	Set Disable/Enable for Hardware Prefetcher function of the processor.
Adj Cache Line Prefet	Disable [Enable]	Set Disable/Enable for Adjacent Cache Line Prefetcher function of the processor.
Intel VT	Disable [Enable]	Set Disable/Enable for Intel® Virtualization Technology function.
Power Technology	Disable [Energy Efficient] Custom	Set Power Management function of the processor.
EIST (Note 1)	Disable [Enable]	Set Disable/Enable for Enhanced Intel SpeedStep Technology function.
Intel Turbo Boost (Note 1) (Note 2) (Note 3)	Disable [Enable]	Set Disable/Enable for Intel Turbo Boost Technology function.
CPU C3 Report (Note 1)	[Disable] ACPI C-2 ACPI C-3	Set Disable/Enable for CPU C3 (ACPI C2) report function to OS.
Package C State Limit (Note 1)	C0 C1 C3 [No Limit]	Set Package C State Limit option function.
Processor Error Mode	[LOM] Poison Poison + Viral	Set Processor Error Mode function.

[ ]: Factory default

(Note 1) Displayed when Power Technology is set to **"Custom."**
(Note 2) Displayed when EIST is set to **"Enable."**
(Note 3) Displayed when the processor supporting this function is embedded.

USB Configuration

The following screen is displayed when selecting **"USB Configuration"** in **Advanced Menu**.



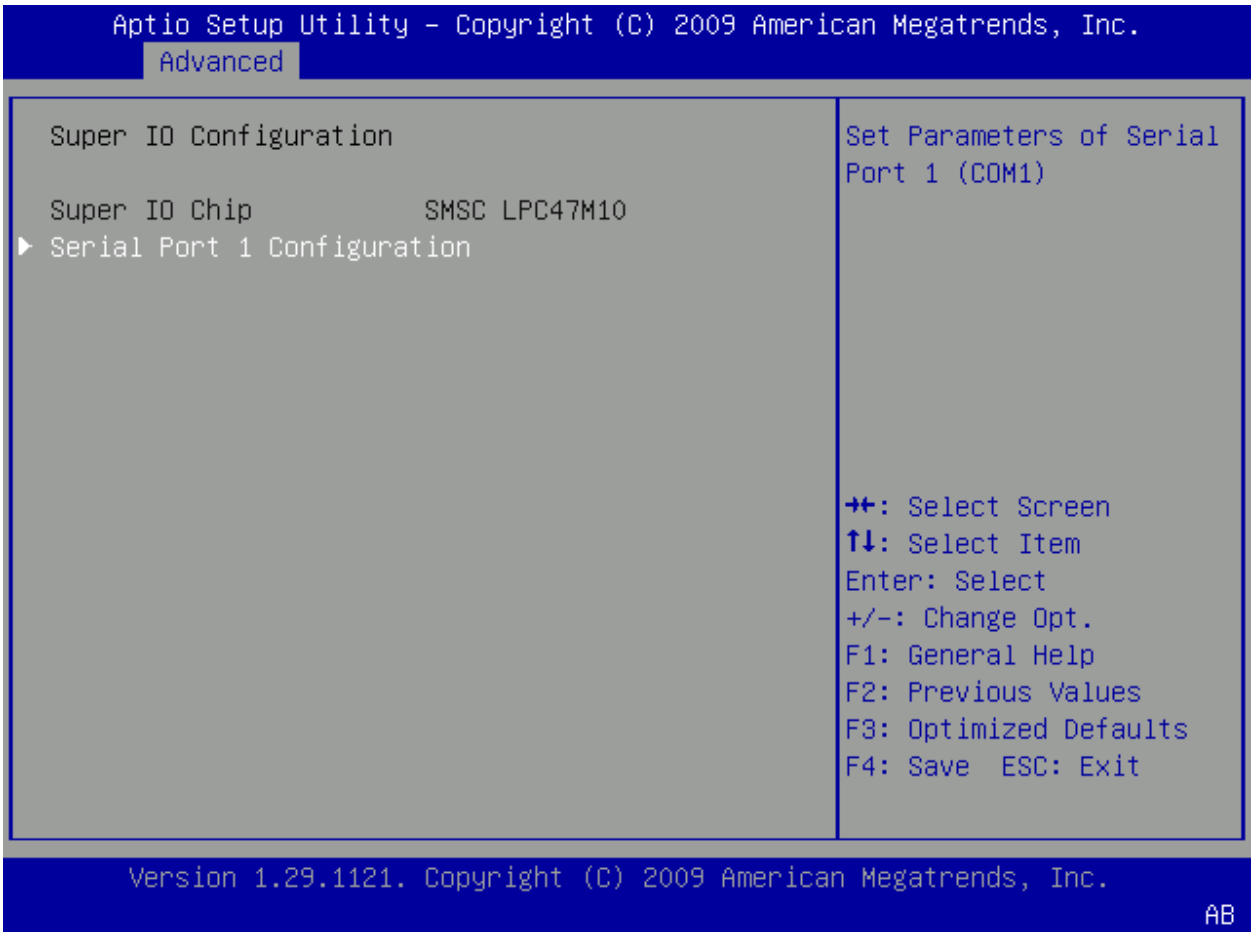
Refer to the following table for the items.

Item	Parameter	Description
Disable USB Port	[Disable] Front Rear Front + Rear All	Set Disable/Enable for USB port. For [Front], the USB port of the front chassis cannot be used. For [Rear], the USB port of the rear chassis cannot be used. For [Front + Rear], the USB port of the front and rear chassis cannot be used. For [All], all the USB ports cannot be used. Note: Selecting [All] disables the internal USB port as well. Select an option besides [All] when using devices (internal DVD drive, virtual floppy drive, virtual CD-ROM drive and remote KVM) connected the internal USB port.

[ ]: Factory default

Super I/O Configuration

The following screen is displayed by selecting **"Super I/O Configuration"** in **Advanced Menu**.

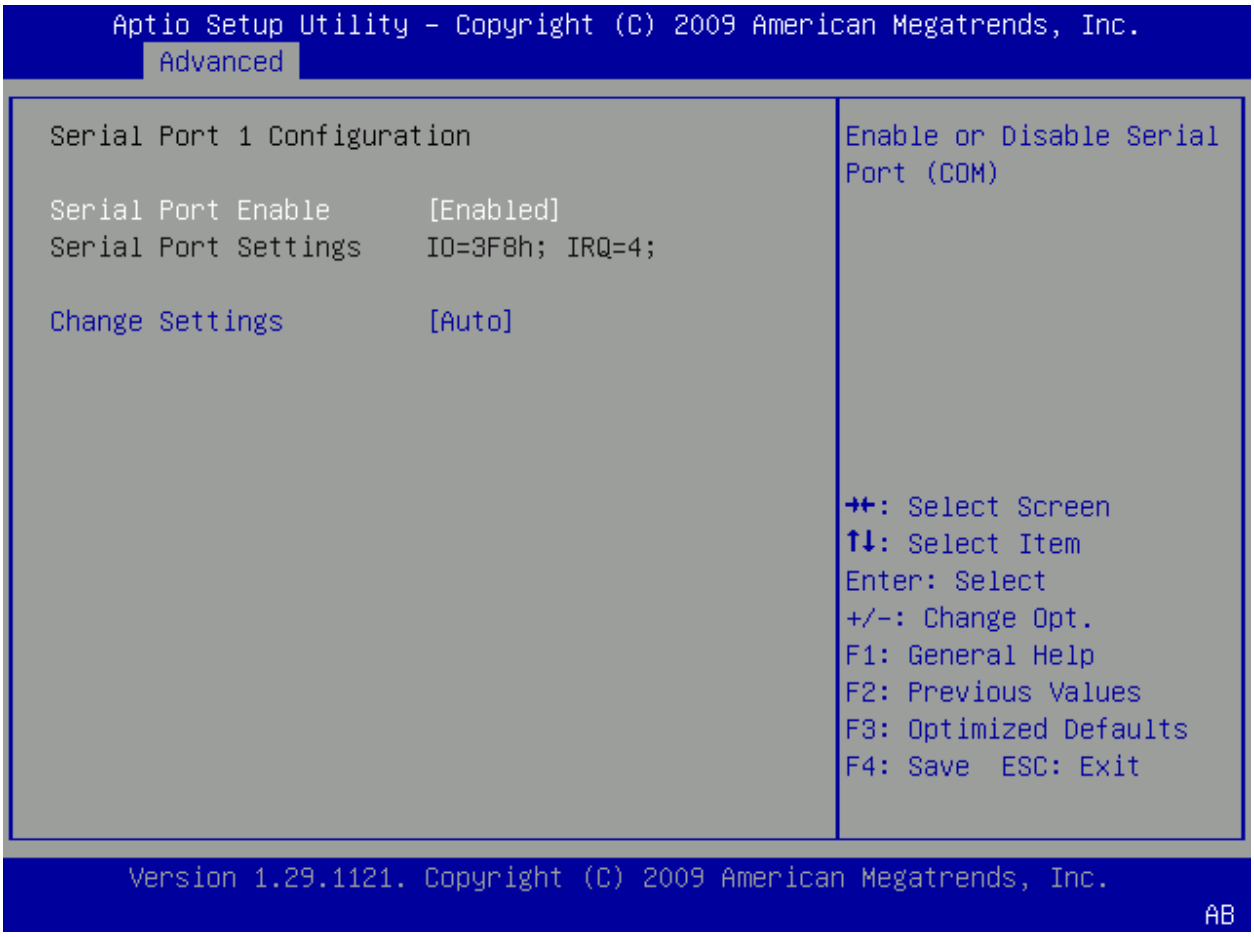


Refer to the table below for the items.

Item	Parameter	Description
Super IO Chip	-	Display the name of the Super IO chip mounted on the system.

Serial Port 1 Configuration

The following screen is displayed by selecting **"Serial Port 1 Configuration"** in **Super I/O Configuration menu**.



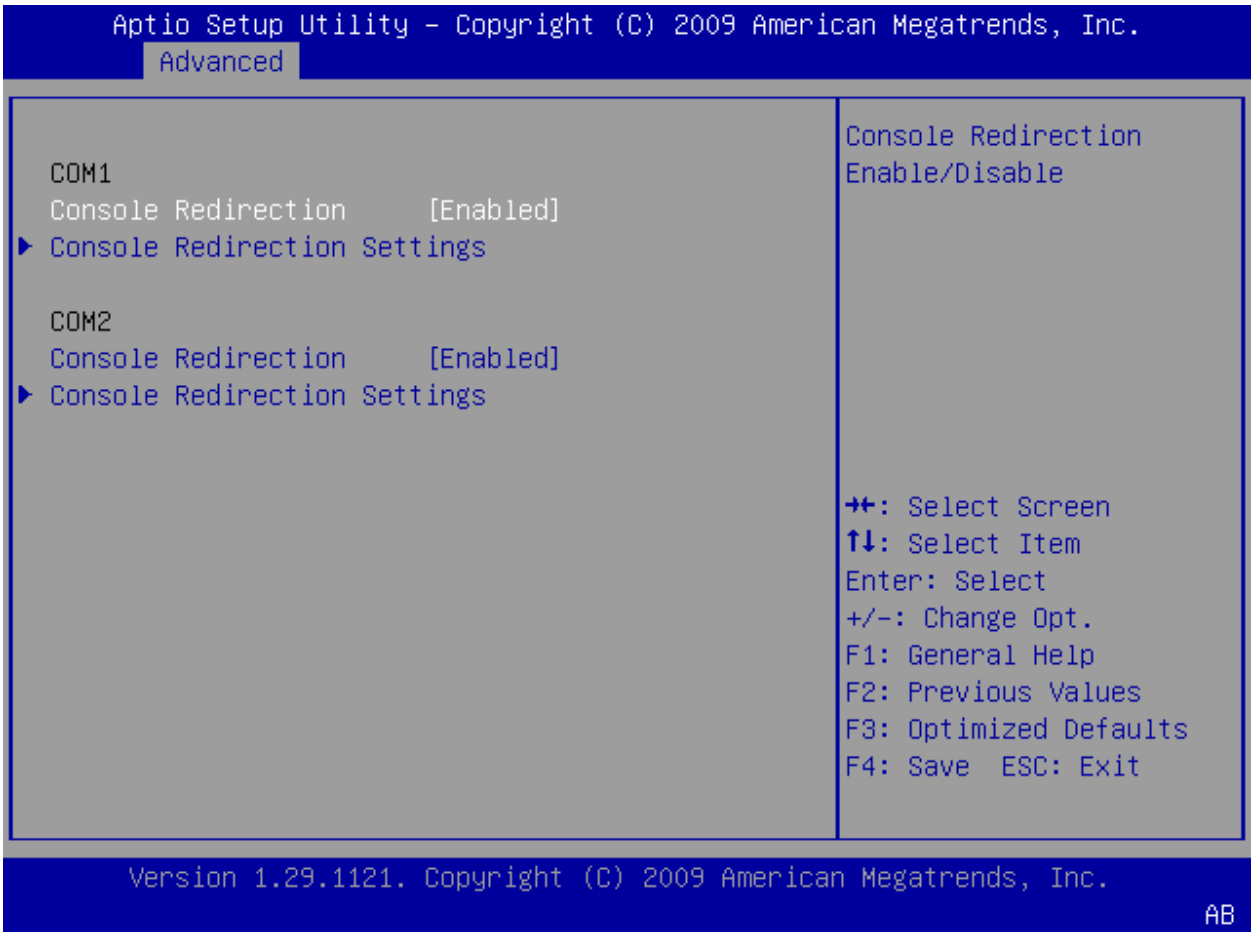
Refer to the following table for the items.

Item	Parameter	Description
Serial Port Enable	Disable [Enable]	Set Disable/Enable for serial port 1.
Serial Port Setting	-	Display base address and interruption of the currently set serial port 1 (display only).
Change Settings	[Auto] IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4; IO=2F8h; IRQ=3,4; IO=3E8h; IRQ=3,4; IO=2E8h; IRQ=3,4;	Set base address and interruption of the currently set serial port 1. When Auto is specified, setting is automatically performed by BIOS.

[ ]: Factory default

Serial Port Console Redirection

The following screen is displayed by selecting **"Serial Port Console Redirection"** in the **Advanced Menu**.



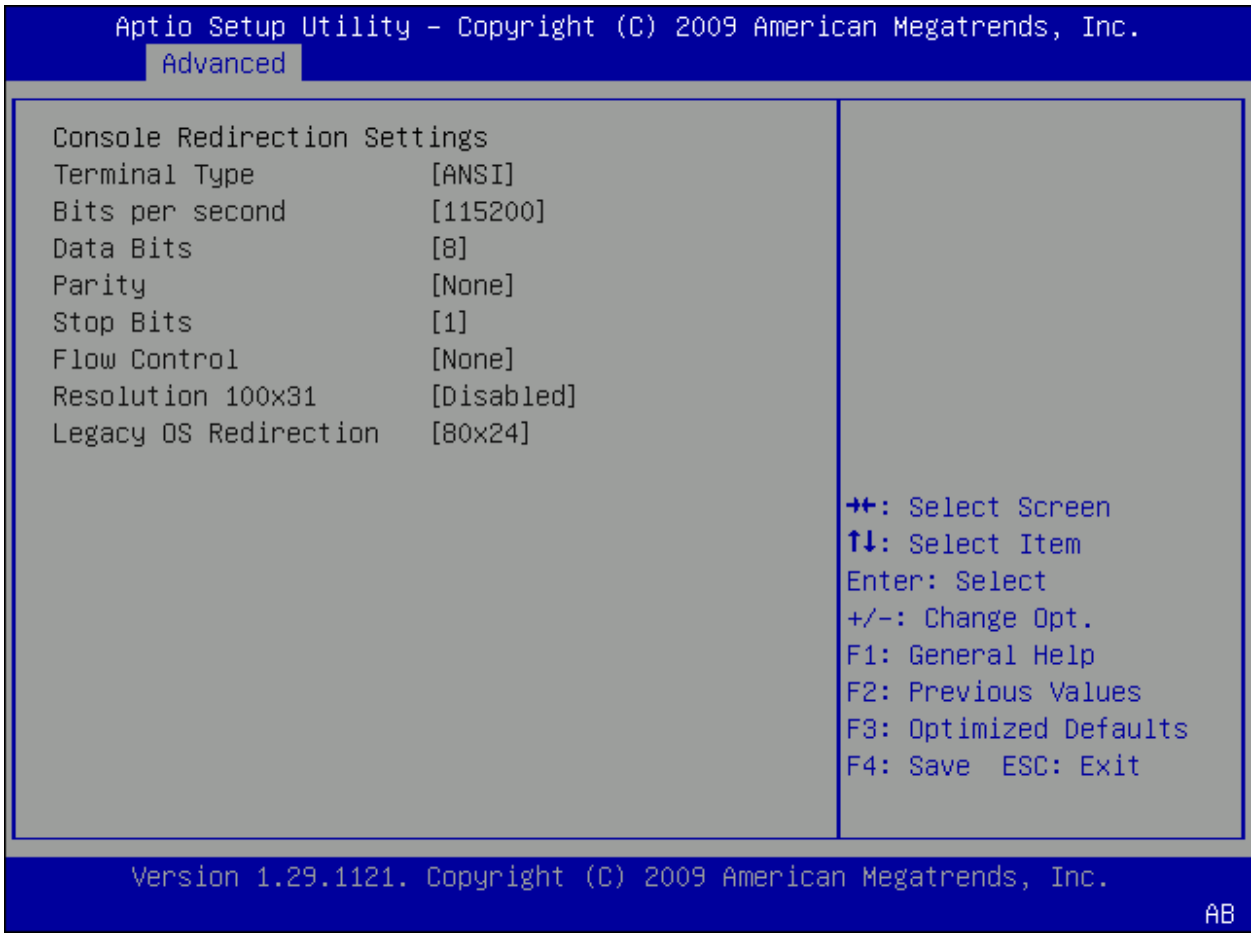
Refer to the following table for the item.

Item	Parameter	Description
Console Redirection	Disable [Enable]	Set Disable/Enable for console redirection. COM1 corresponds to the external serial port of the management board COM2 corresponds to the internal serial port of the service processor

[ ]: Factory default

Console Redirection Settings

The following screen is displayed by selecting **"Console Redirection Settings"** in **Serial Port Console Redirection Menu**.



Refer to the following table for the items.

Item	Parameter	Description
Terminal Type	-	Display console type (display only).
Bits per second	-	Display baud rate (display only).
Data Bits	-	Display data bit (display only).
Parity	-	Display parity (display only).
Stop Bits	-	Display stop bit (display only).
Flow Control	-	Display flow control method (display only).
Resolution 100x31	-	Display extension(100x31) of console resolution

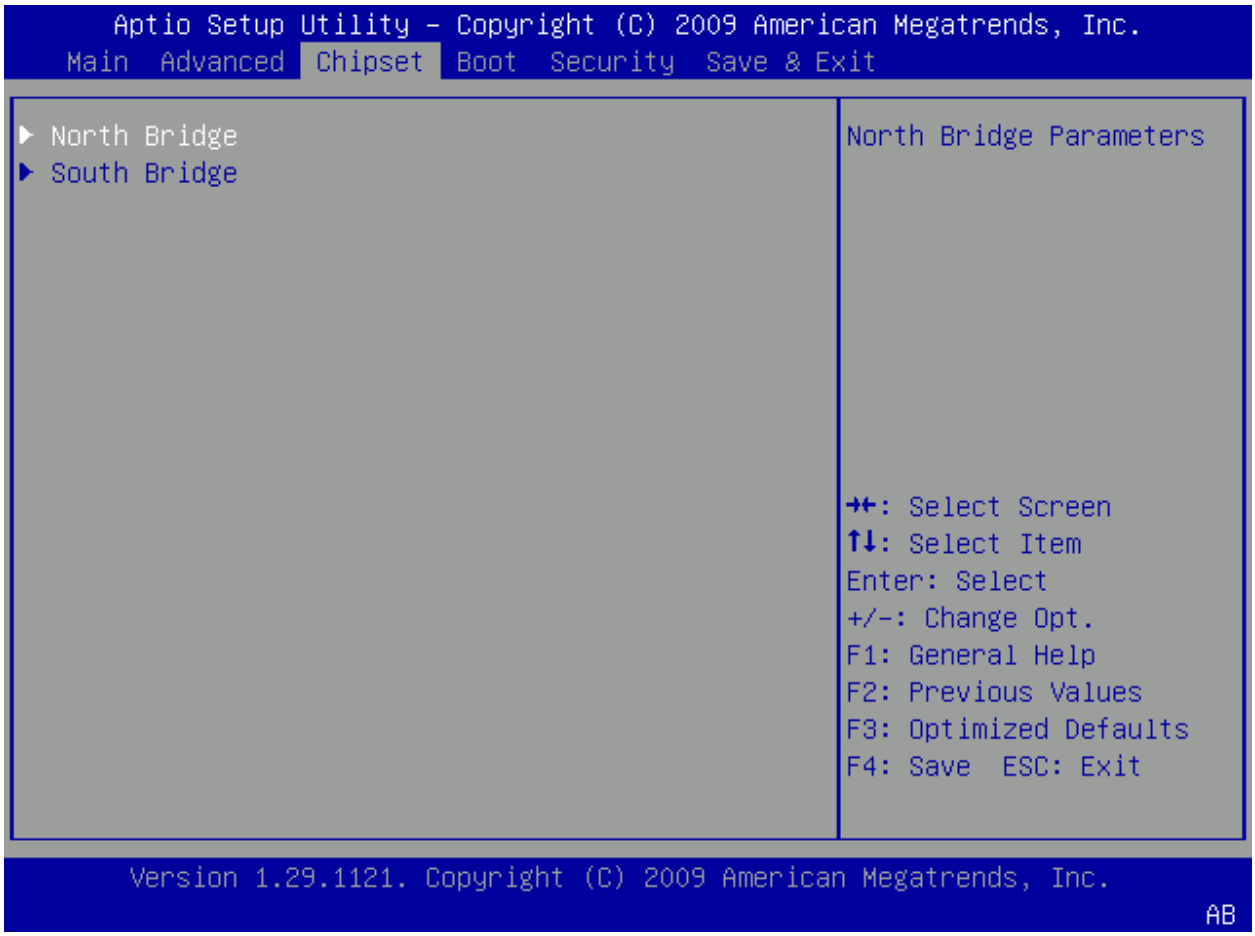
		(display only).
Legacy OS Redirection	-	Display resolution of Legacy OS redirection console (display only)

[ ]: Factory default

Chipset

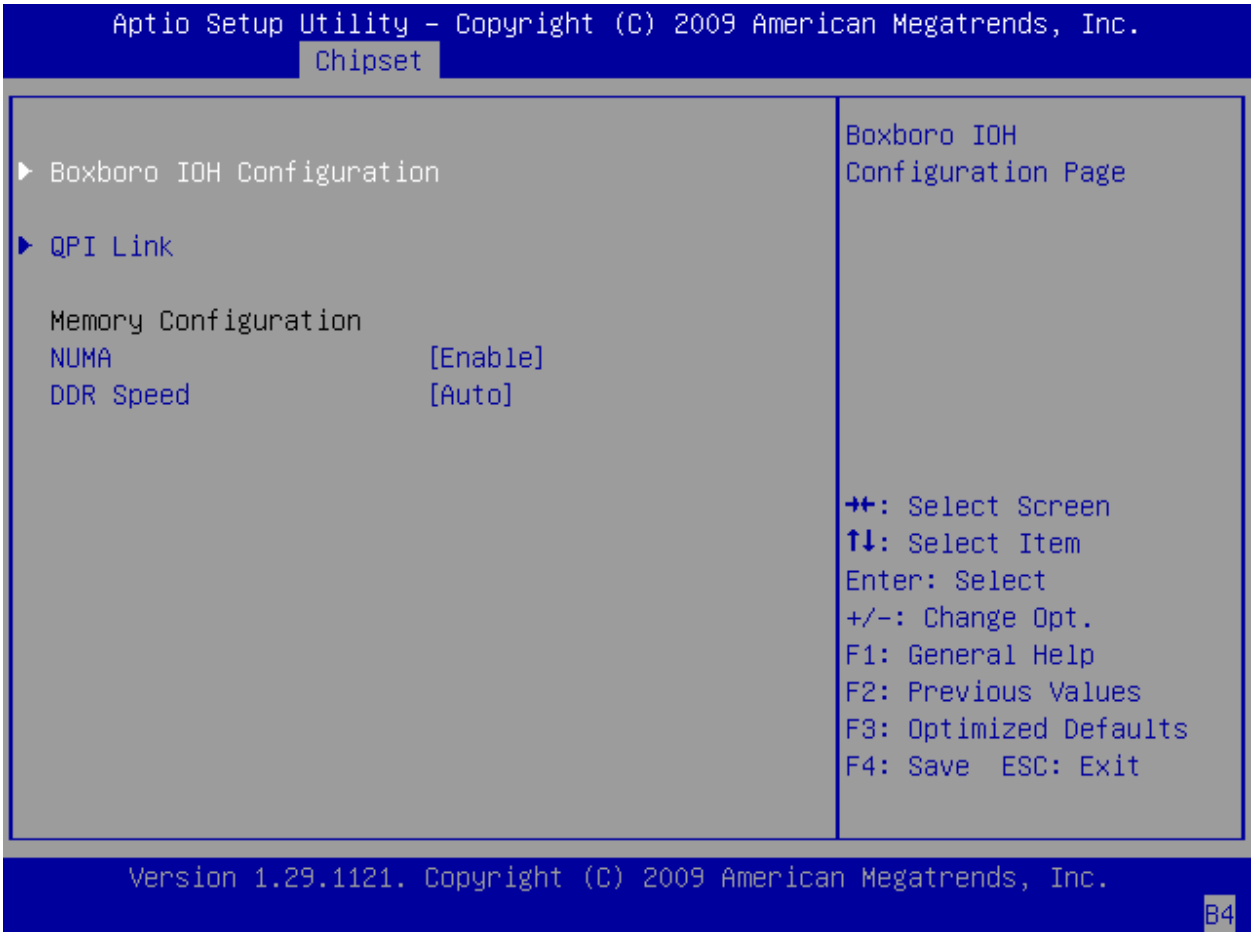
Chipset Menu is displayed by moving the cursor to the position of **"Advanced."**

For the menu with " ▶ " at the beginning, sub menu is displayed by selecting it and pressing <Enter> key.



North Bridge

The following screen is displayed by selecting **"North Bridge"** in **Chipset Menu**.



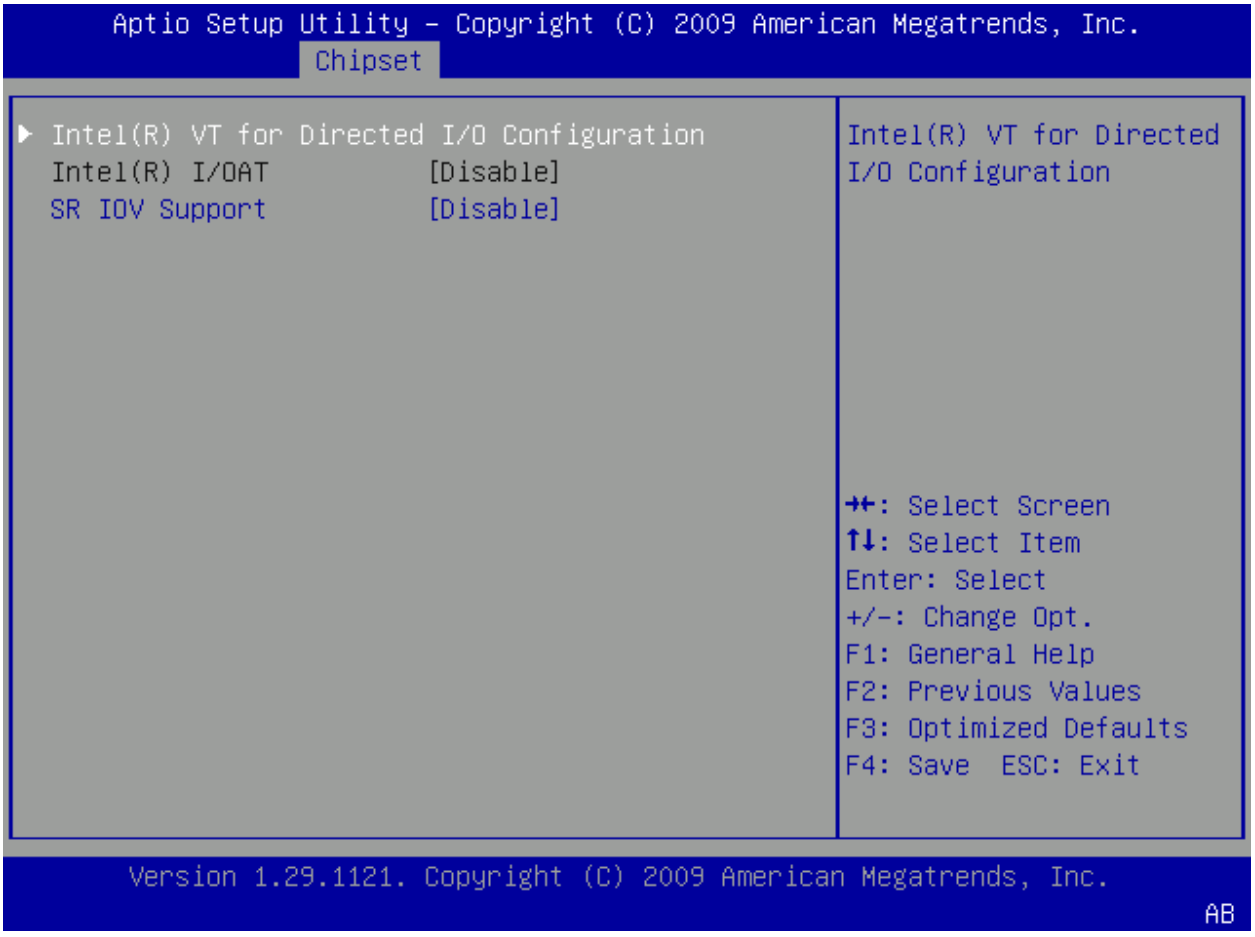
Refer to the following table for the items.

Item	Parameter	Description
NUMA	Disable [Enable]	Set Disable/Enable for NUMA (Non Uniform Memory Access).
DDR Speed	[Auto] Force DDR3 800 Force DDR3 978 Force DDR3 1067	Set operation clock of memory. It is impossible to select the DDR speed that exceeds the maximum speed CPU supports

[ ]: Factory default

IOH Configuration

The following screen is displayed by selecting **"Boxboro IOH Configuration"** in **North Bridge Menu**.



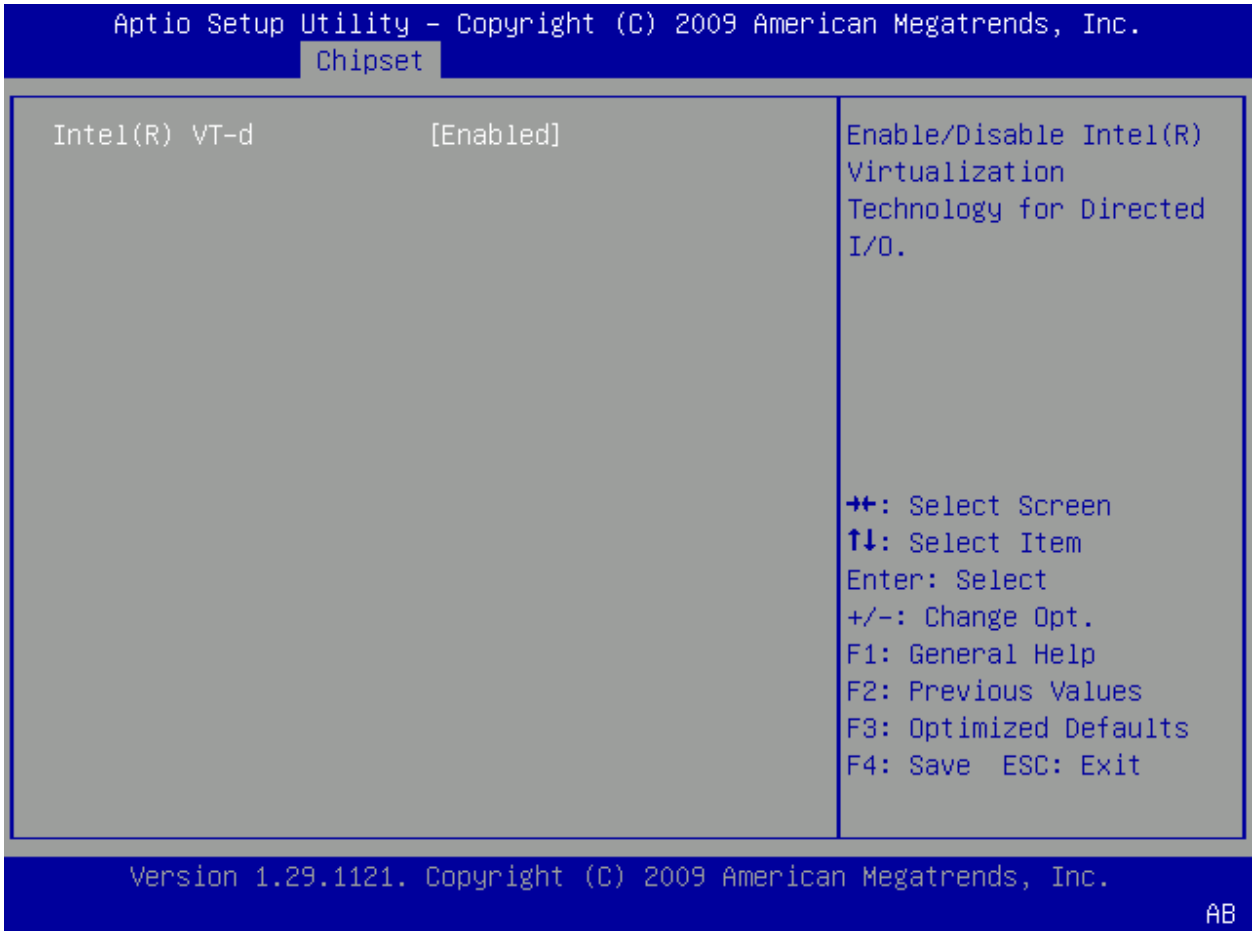
Refer to the following table for the items.

Item	Parameter	Description
Intel(R) I/OAT	[Disable] Enable	Display Disable/Enable for Intel(R) I/O Acceleration Technology.(Always Disable) (display only)
SR IOV Support	[Disable] Enable	Set Disable/Enable for Single Root I/O Virtualization.

[ ]: Factory default

Intel® VT for Directed I/O Configuration

The following screen is displayed by selecting **"Intel(R) VT for Directed I/O Configuration"** in **IOH Configuration Menu**.



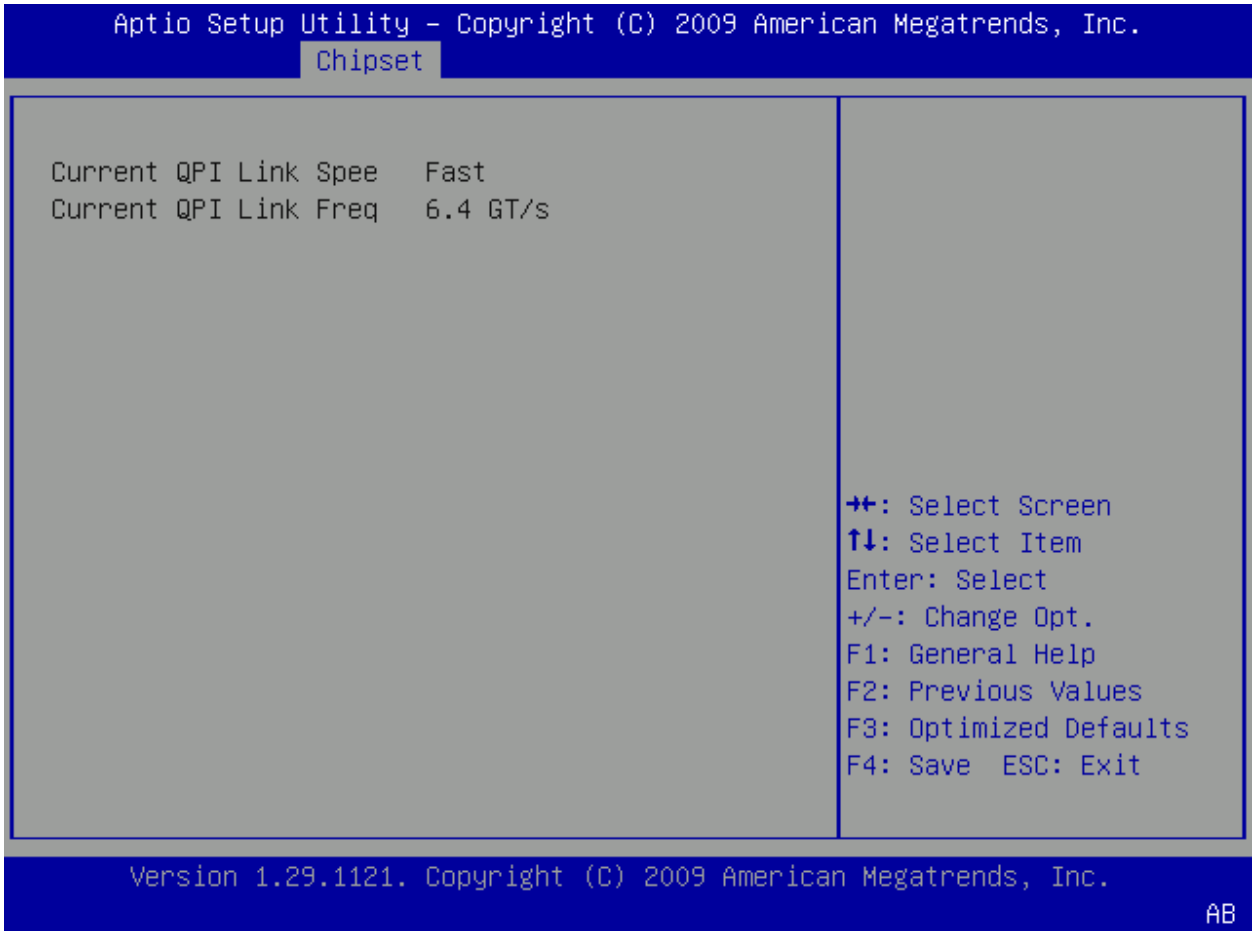
Refer to the following table for the items.

Item	Parameter	Description
Intel(R) VT-d	Disable [Enable]	Set Disable/Enable for Intel(R) Virtualization Technology for Directed I/O.

[ ]: Factory default

QPI Link

The following screen is displayed by selecting **"QPI Link"** in **North Bridge Menu**.



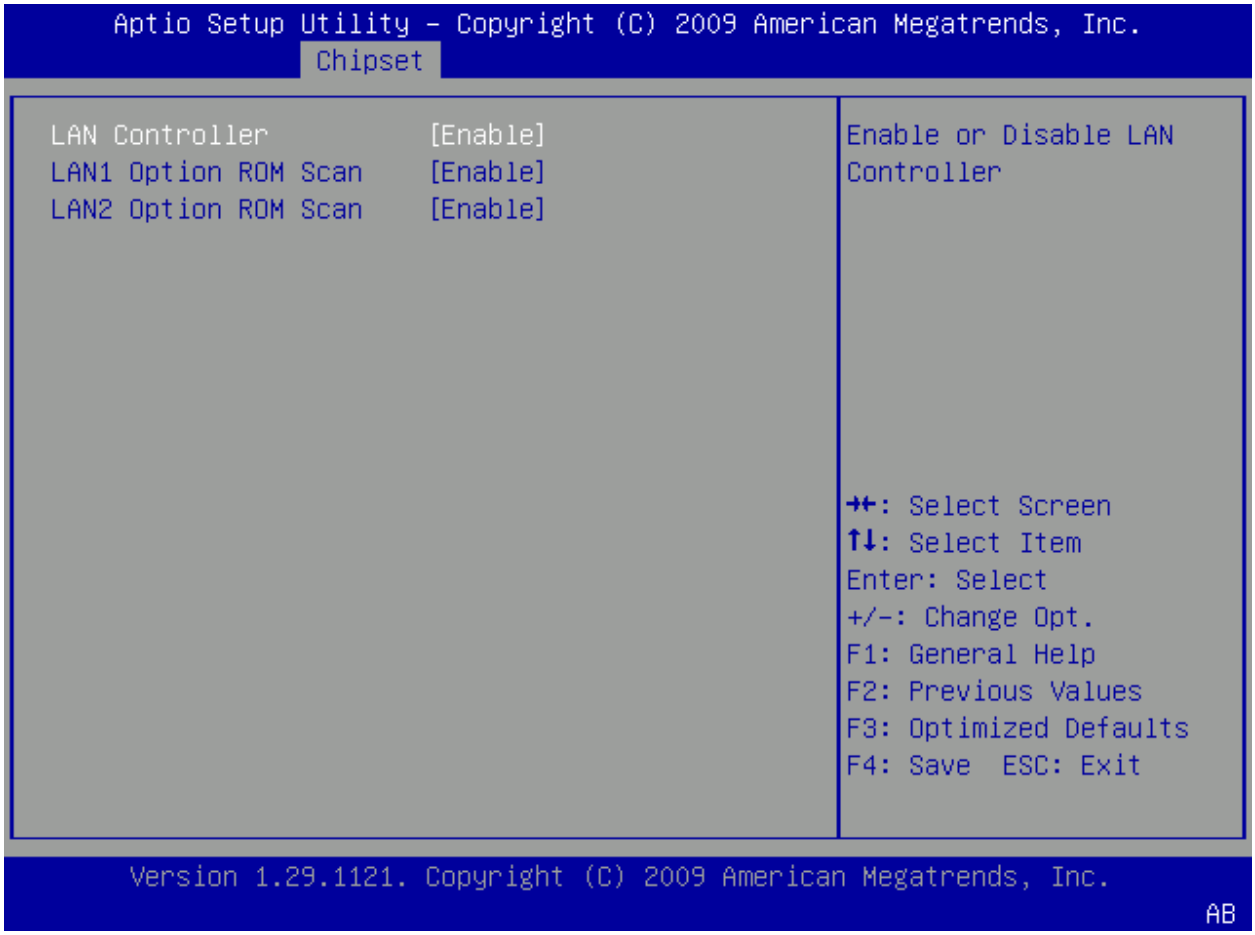
Refer to the following table for the item.

Item	Parameter	Description
Current QPI Link Speed	-	Display the current QPI link speed (display only).
Current QPI Link Frequency	-	Display the current QPI link frequency (display only).

[ ]: Factory default

South Bridge

The following screen is displayed by selecting **"South Bridge"** in **Chipset Menu**.



Refer to the following table for the item.

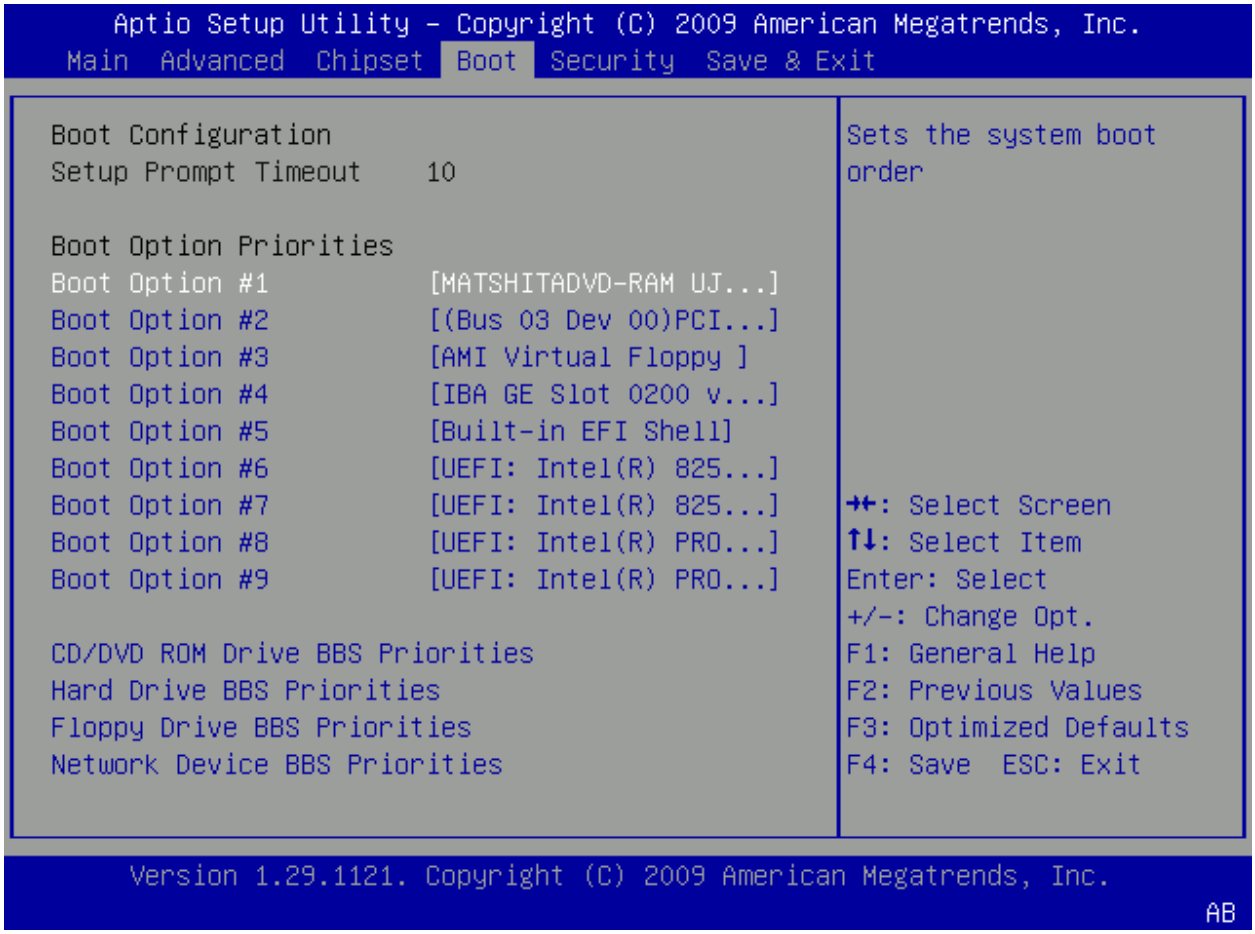
Item	Parameter	Description
LAN Controller	Disable [Enable]	Set Disable/Enable for LAN controller.
LAN1 Option ROM Scan	Disable [Enable]	Set Disable/Enable for BIOS installed in LAN1 controller.
LAN2 Option ROM Scan	Disable [Enable]	Set Disable/Enable for BIOS installed in LAN2 controller.

[ ]: Factory default

Boot

Boot Menu is displayed by moving the cursor to the position of **"Boot."**

For the item with " ▶ " at the beginning, sub menu is displayed when selecting it and pressing <Enter> key.



Refer to the following table for the item.

Item	Parameter	Description
Setup Prompt Timeout	-	Display wait time (second) for <DEL> key entry to enter BIOS menu when booting BIOS (display only).
Boot Option Priorities (Note 1) (Note 3) (Note 4)	CD/DVD Device Hard Disk Device Floppy Disk Device Network Device (Note 2)	Specify priority order of boot device. BIOS attempts to boot the device related to Boot Option #1 first, then Boot Option #2, and Boot Option #3…in order of priority. When multiple boot devices do not

		exist, all of these configuration options are not displayed. To select a boot device, press <Enter> at the desired option and select the boot device from the displayed menu. For example,if you want to have boot “Built-in EFI shell” at first priority,then select Boot Option #1,press <Enter> and select “Built-in EFI shell”. Also it is possible to disable a specific boot device by selecting Disabled.

[ ]: Factory default

(Note 1) Only 1 device of the specific type is displayed in the list. When 2 or more devices of the same type exist, change priority order of the devices of the same type using sub menu,BBS priorities.

(Note 2) All devices which are recognized by BIOS are displayed.
Such as :
MATSHITADVD-RAM UJ...
(Bus 03 Dev 00)PCI...

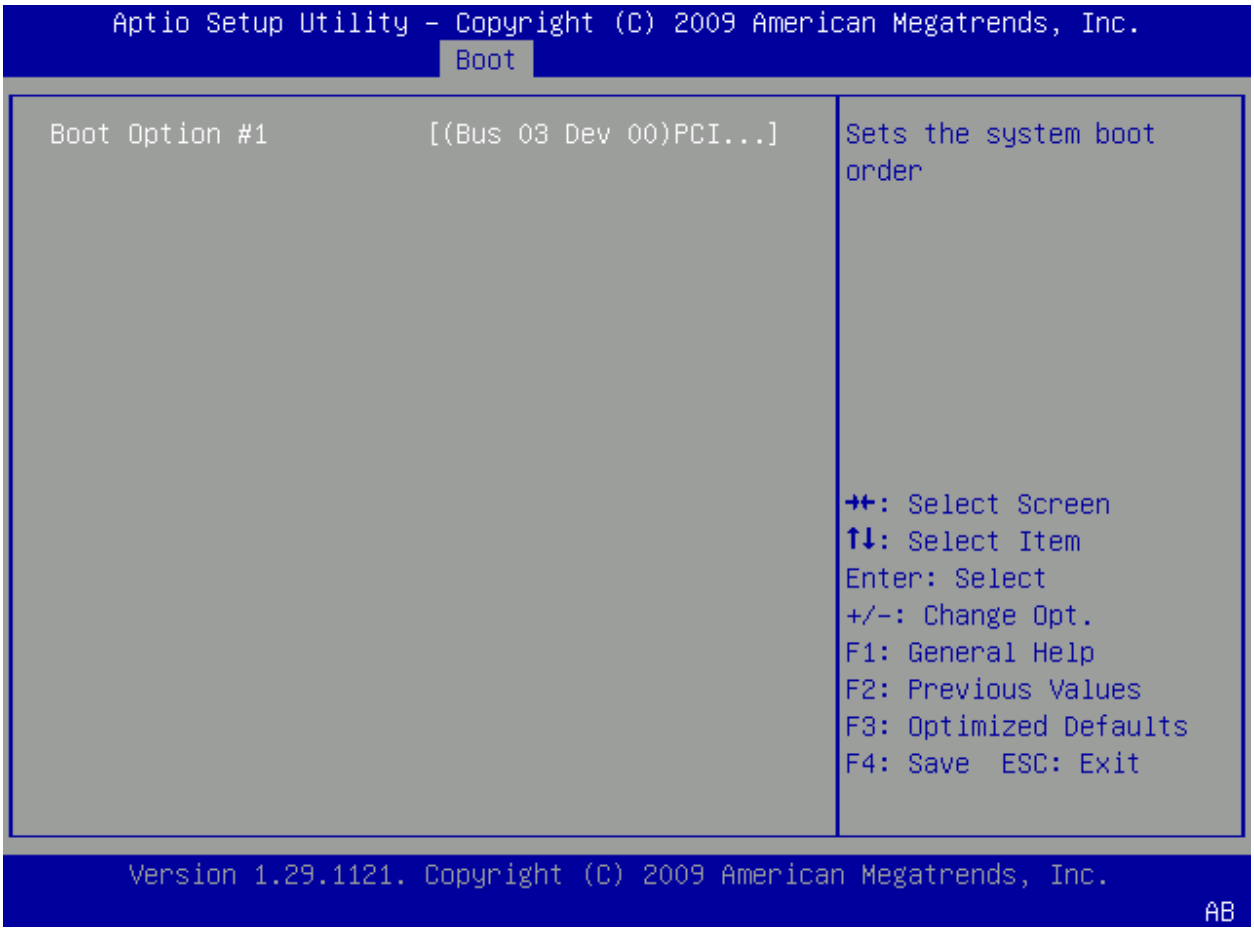
(Note 3) If a device is not recognized by BIOS because of a failure/error, the device is not recognized as boot device at the same time. After the failure/error is resolved, the device will be recognized as new boot device at the lowest boot priority order. So, change the priority order for the device if needed.

(Note 4) If both EFI boot and Legacy boot options are included in this menu at the same time and the priority for the EFI boot option is lower than the priority for the Legacy boot option,then the EFI boot option will not be treated as boot device. The EFI boot options mean “UEFI:xxxx” and "Built-in EFI Shell".
For example,
Boot Option #1 : [MATSHITADVD-RAM UJ...] <-Legacy boot option
Boot Option #2 : [Built-in EFI Shell] <-EFI boot option
Boot Option #3 : [Bus 03 Dev 00)PCI...]

If a media is not inserted in the “MATSHITADVD-RAM UJ...",Option #1, then the “Bus 03 Dev 00)PCI...”,Option #3, will be selected as a boot device instead of the [Built-in EFI Shell], Option #2.

Hard Drive BBS Priorities

The following screen is displayed by selecting **"Hard Drive BBS Priorities"** in **Boot Menu**.



Refer to the following table for the item.

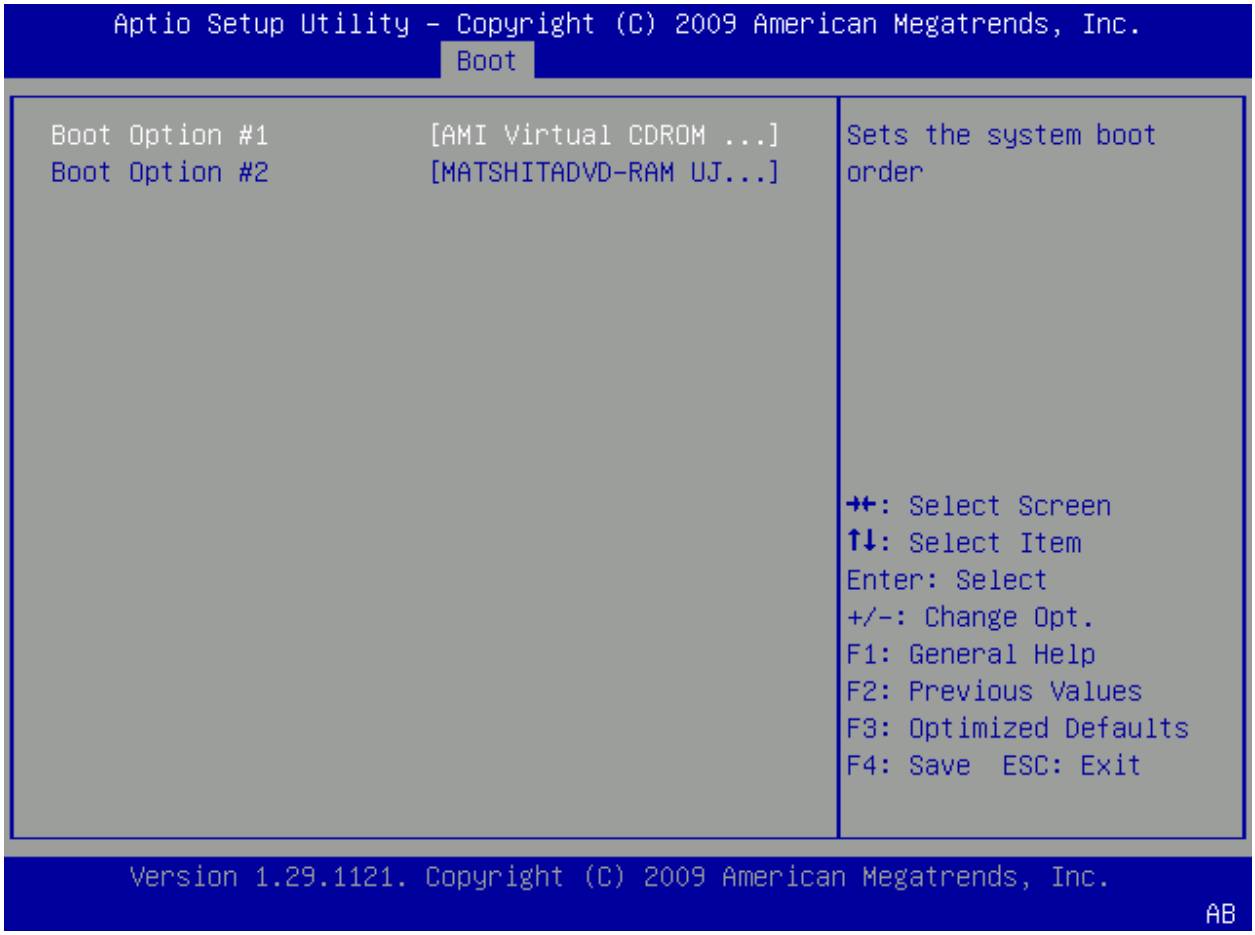
Item	Parameter	Description
Boot Option #1-#n	Hard Disk Device (Note 1)	Specify the boot priority order of hard drive device. The device of the highest priority is displayed in the main Boot Option Priorities list. Each device can also be set to Disabled when it is necessary to set the device not to be used as boot device.

[ ]: Factory default

(Note 1) All devices which are recognized by BIOS are displayed.
Such as :
(Bus 03 Dev 00)PCI...

CD/DVD ROM Drive BBS Priorities

The following screen is displayed by selecting **"CD/DVD ROM Drive BBS Priorities"** in **Boot Menu**.



Refer to the following table for the item.

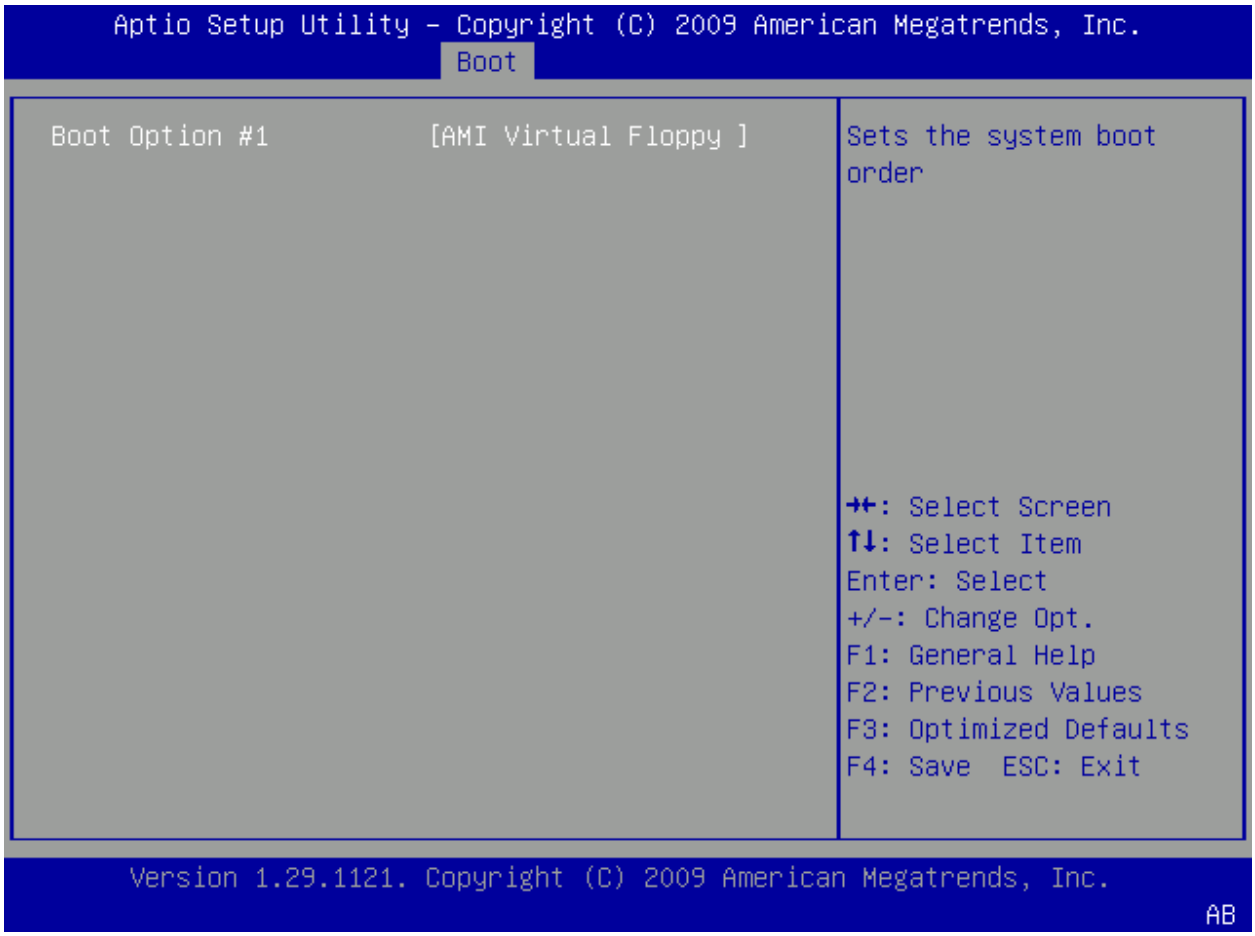
Item	Parameter	Description
Boot Option #1-#2	CD/DVD Device (Note1)	Specify boot priority order of CD/DVD ROM drive devices. The device of the highest priority is displayed in the main Boot Option Priorities list. Each device can also be set to Disabled when it is necessary to set the device not to be used as boot device.

[ ]: Factory default

(Note 1) All devices which are recognized by BIOS are displayed.
Such as : AMI Virtual CDROM...
MATSHITADVD-RAM UJ...

Floppy Drive BBS Priorities

The following screen is displayed by selecting **"Floppy Drive BBS Priorities"** in **Boot Menu**.



Refer to the following table for the item.

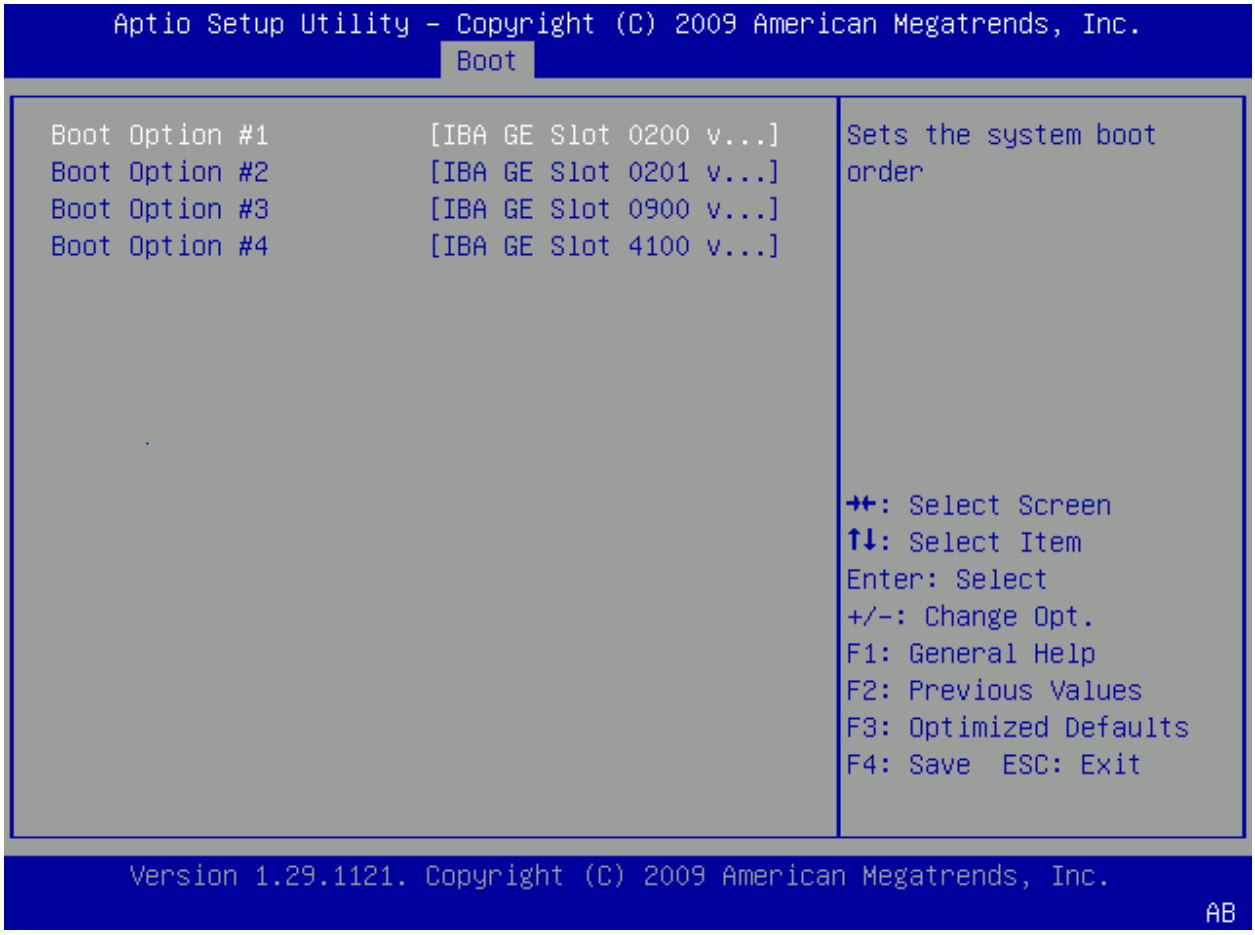
Item	Parameter	Description
Boot Option #1	Floppy Disk Device (Note 1)	Specify boot priority order of floppy drive devices. The device of the highest priority is listed in the main Boot Option Priorities list. Each device can also be set to Disabled when it is necessary to se the device not to be used as boot device.

[ ]: Factory default

(Note 1) All devices which are recognized by BIOS are displayed.
Such as :
AMI Virtual Floppy

Network Device BBS Priorities

The following screen is displayed by selecting **"Network Drive BBS Priorities"** in **Boot Menu**.



Refer to the following table for the item.

Item	Parameter	Description
Boot Option #1	Network Device (Note 1)	Specify boot priority order of nework devices. The device of the highest priority is listed in the main Boot Option Priorities list. Each device can also be set to Disabled when it is necessary to se the device not to be used as boot device.

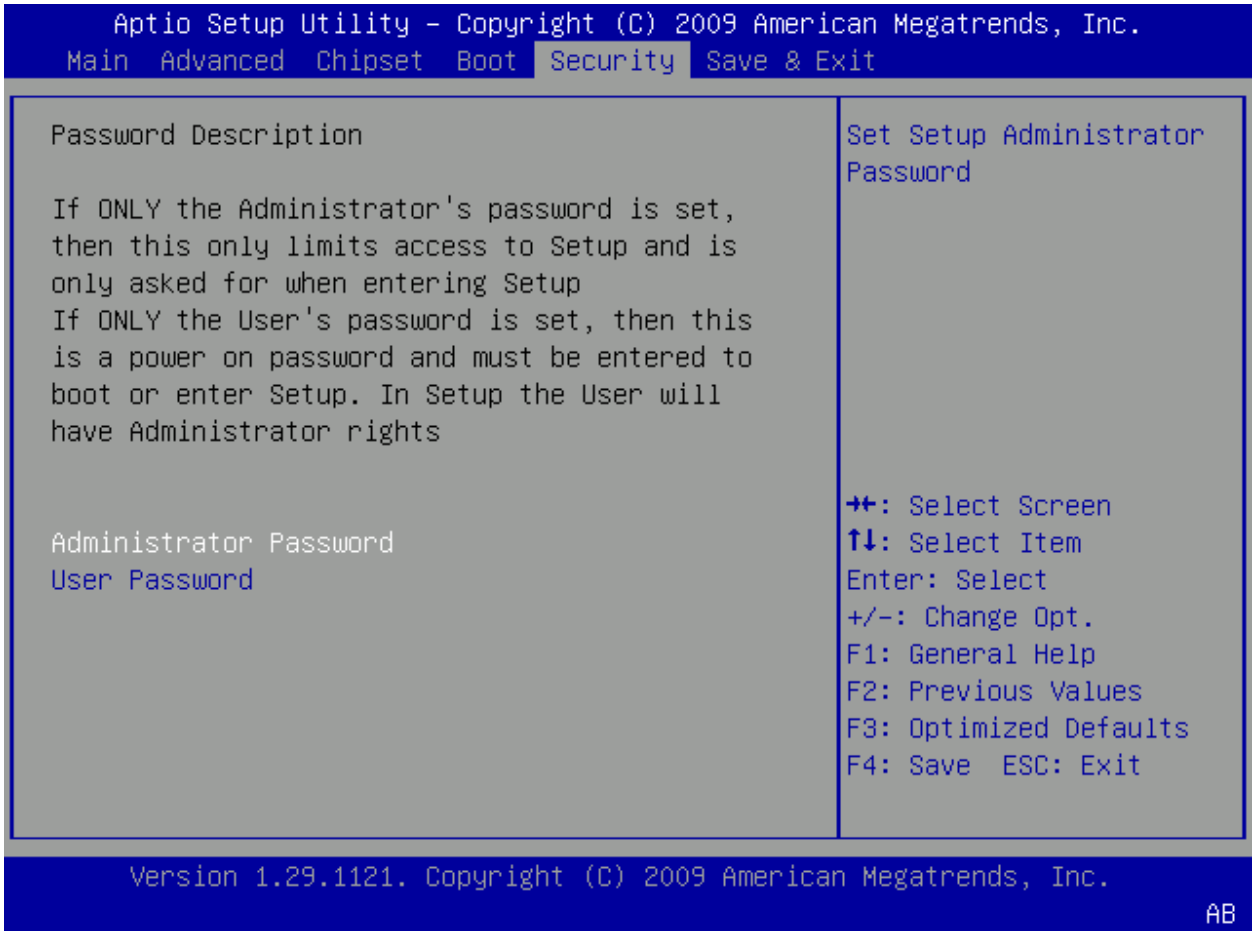
[ ]: Factory default

(Note 1) All devices which are recognized by BIOS are displayed.

Such as : IBA GE Slot 0200 v..
IBA GE Slot 0201 v...
IBA GE Slot 0900 v...
IBA GE Slot 4100 v...

Security

Security Menu is displayed by moving the cursor to the position of **"Security."**



Refer to the following table for the item.

Item	Parameter	Description
Administrator Password	-	Set Administrator Password.
User Password	-	Set User Password.

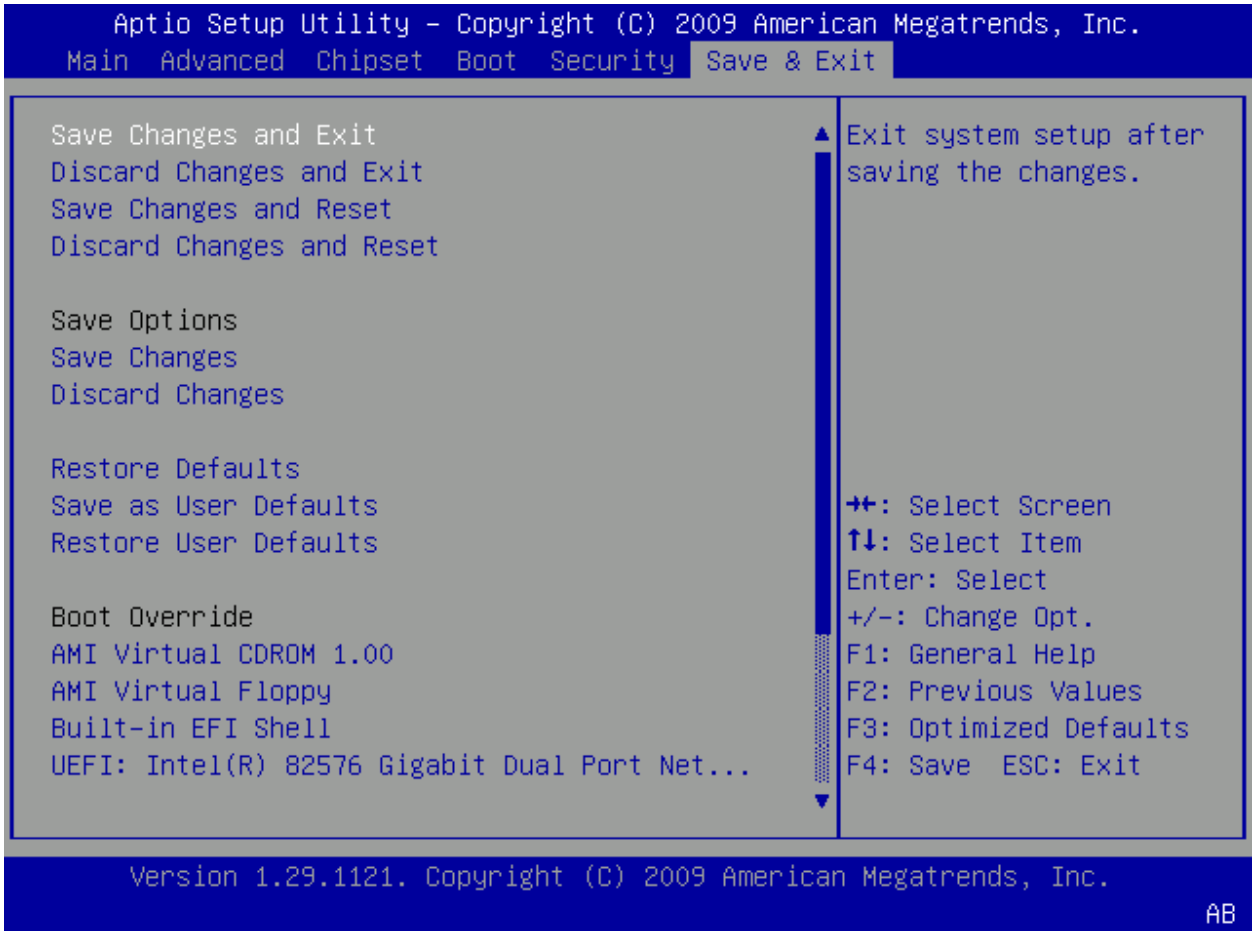
[ ]: Factory default

Enter password in 20 or less alphabets or numbers directly from the keyboard.

When Administrator or User Password is set, password entry request screen is displayed at system boot and it is required to enter either one of the passwords previously set.

Save & Exit

Save & Exit Menu is displayed when moving the cursor to the position of **"Save & Exit."**



Refer to the following table for the item.

Item	Parameter	Description
Save Changes and Exit	-	Select this item to save the newly selected contents to nonvolatile memory when exiting SETUP. Confirmation screen is displayed when selecting this item. Selecting **"Yes"** saves the newly selected contents to nonvolatile memory and exits SETUP, and the server automatically reboots if nessesary. Selecting **"No"** can return to the **"Save & Exit"** Menu.

Discard Changes and Exit	-	Select this item to exit SETUP without saving the newly selected contents to nonvolatile memory. Confirmation screen is displayed when selecting this item. Selecting **"Yes"** can exit SETUP without saving the changed contents to nonvolatile memory. Selecting **"No"** can return to the **"Save & Exit"** Menu.
Save Changes and Reset	-	Select this item to save newly selected contents to nonvolatile memory when exiting SETUP. Confirmation screen is displayed when selecting this item. Selecting **"Yes"** saves the newly selected contents to nonvolatile memory and exits SETUP, and the server automatically reboots. Selecting **"No"** can return to the **"Save & Exit"** Menu.
Discard Changes and Reset	-	Select this item to exit SETUP without saving the newly selected contents to nonvolatile memory. Selecting **"Yes"** can exit SETUP without saving the changed contents to nonvolatile memory, and the server automatically reboots the system. Selecting **"No"** can return to the **"Save & Exit"** Menu.
Save Changes	-	Select this item to save the newly selected contents to nonvolatile memory without exiting SETUP. Select **"Yes"** to save it to nonvolatile memory. Select **"No"** to return to **"Save & Exit "** Menu.
Discard Changes	-	Select this item to restore the

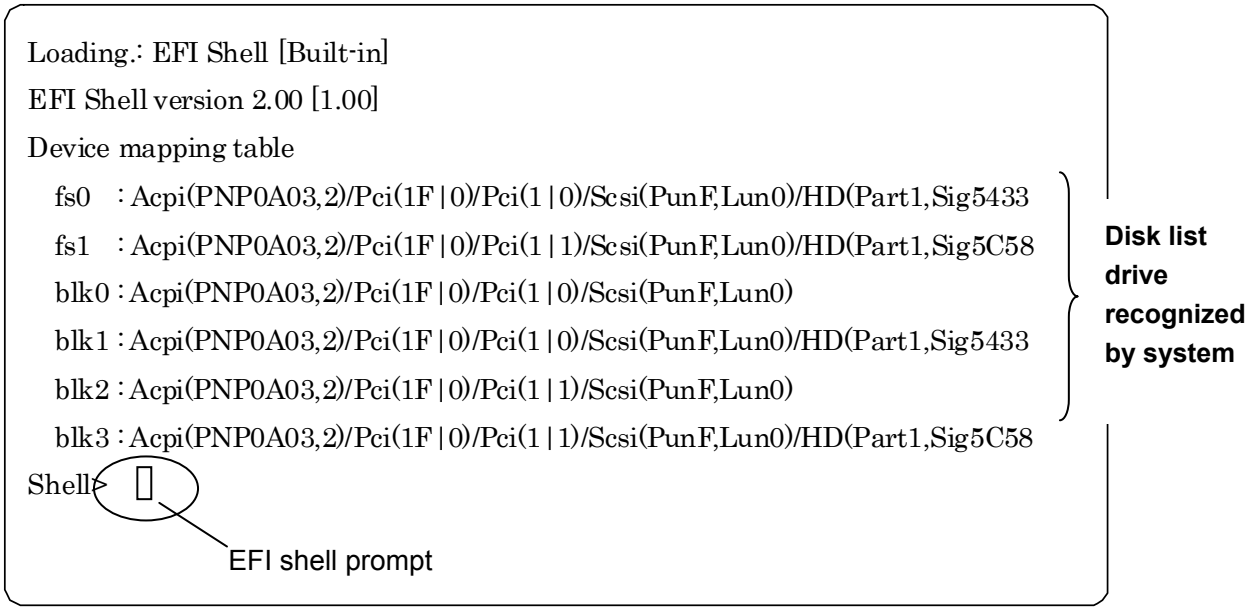
		current change to previous value before saving it to nonvolatile memory. Select **"Yes"** to restore the previous value. Select **"No"** to return to **"Save & Exit"** Menu screen.
Restore Defaults	-	Select this item to restore all the values to default value (factory default). Confirmation screen is displayed when selecting **"Restore Defaults"**. Select **"Yes"** to restore default value. Select **"No"** to return to **"Save and Exit"** Menu screen.
Save as User Defaults	-	Temporarily save SETUP parameter of user to nonvolatile memory. The setting saved by this item is able to be loaded using **Restore User Defaults.** The user setting saved to nonvolatile memory will be kept unless it is cleared by f BIOS SG settings clear operation.
Restore User Defaults	-	Select this item to load the setting saved by user.
Boot Override	-	Display all the bootable devices which directly allow user to boot device regardless Boot Option Priorities list. If no change is made, or if some changes wihich do not require reboot are made to BIOS setup option, then system does not reboot and does boot the selected device. If some changes which require reboot are made and saved to BIOS setup option, then sytem does reboot regarding Boot Option Priorities list and does not boot the selected device.

[ ]: Factory default

EFI Shell

EFI Shell is started by selecting **"Build-in EFI Shell"** of **Boot Override** in **Save&Exit Menu** of **SETUP**, or setting **Boot Option #1** of **Boot Menu** to **"Build-in EFI Shell"** and rebooting the system.

The following screen is displayed when starting EFI Shell.



EFI Shell Command

The list of Shell commands executable on EFI Shell and their functions are as follows. When entering EFI shell command and pressing <Enter> key, Shell command is executed.

Command		Description
alias	alias [-d|-v|-b] [sname] [value]	Display/create/delete alias definition under EFI Shell environment.
attrib	attrib [+a|-a] [+s|-s] [+h|-h] [+r|-r] [-b] [file ...] [directory ...]	Display/change attribute of file/directory.
cd	cd [path]	Display/change current directory.
cls	cls [color]	Clear the standard output.
connect	connect [-r] handle# | deviceHandle# driverHandle#	Bind EFI driver to device and start the driver.
comp	comp file1 file2	Compare the contents of the two files.
config	config [-v]	Display the settings of BIOS SETUP.
cp	cp [-r] src [src ...] [dst]	Copy file/directory.
date	date [mm/dd[yy]yy]	Display/set date.
dblk	dblk device [Lba] [blocks]	Dump block device.
devices	devices [-b] [-l language]	Display the list of devices managed by EFI driver.
devtree	devtree [-b] [-l language] [-d] [deviceHandle]	Display device tree.
dir	dir [-r] [-a[attrib]] [file]	Display the list of file/directory.
disconnect	disconnect DeviceHandle# [DriverHandle# [ChildHandle#]] | [-r]	Disconnect device and EFI driver.
dmem	dmem [Address] [Size] [;MMIO]	Dump memory.
dmpstore	dmpstore [-b] [-d] [variable]	Display NvRAM variable.
drivers	drivers [-l language]	Display driver information list.
drvcfg	drvcfg [-l language] [-c] [-f <type>|-v|-s] [driverHandle [deviceHandle [childHandle]]]	Start EFI DriverConfigurationProtocol.
drvdiag	drvdiag [-c] [-l language] [-s|-e|-m] [driverHandle [deviceHandle [childHandle]]]	Start EFI DriverDiagnosticsProtocol.
echo	echo [-on | -off] echo [message]	Display message or switch echo on/off.
edit	edit [file]	Edit ASCII/UNICODE file.
err	err [ErrorLevel]	Display/change error level.
exit	exit	Close EFI Shell.
help	help [-b] | [cmd]	Display help information.
load	load file [file ...]	Load EFI driver.
ls	ls [-b] [-r] [-a [attrib]] [file]	Display directory/file list.
map	map [-r|-v|-d] [sname] [handle] [-b]	Display/define mapping information.

mem		Display memory contents of system or device.
memmap	memmap [-b]	Display memory map.
mkdir	mkdir dir [dir ...]	Create directory.
mm	mm Address [Width 1|2|4|8] [;MMIO| ; MEM| ; IO | ;PCI] [:Value] [-n]	Display/change MEM/IO/PCI.
mode	mode [row col]	Display/change console output device mode.
mv	mv src [src ...] [dst]	Move file/directory.
openinfo	openInfo Handle	Display handle/agent protocol.
pci	pci [Bus Dev [Func] [-i] [-s [Seg]]]	Display configuration space for PCI device.
reconnect	reconnect –r	Re-connect EFI driver.
reset	reset [-w|-s [string]]	Reset or shut down system.
rm	rm [-q] file [file ...]	Delete file/directory.
set	set [-d|-v|-b] [sname [value]]	Display/create/change/delete EFI environment variable.
smbiosview	smbiosview [-t smbiosType]|[-h smbios handle]|[-s]|[-a]	Display SMBIOS information.
time	time [hh:mm[:ss]]	Display current time or set time.
timezone	timezone [-s hh:mm | -l] [-b] [-f]	Display or set time zone.
type	type [-a|-u] [-b] file [file ...]	Display file contents.
unload	unload [-n] [-v] handleIndex	Unload protocol image.
ver	ver [-s]	Display version information.
vol	vol [fs] [-n <volume label>]	Display volume information of file system.

RAID System Configuration

This section describes how to use the internal hard disk drives as a RAID System using the RAID Controller (MegaRAID).

For more information about the optional RAID Controller, refer to the documents provided with the optional Products.

RAID

Overview of the RAID System

What is RAID?

RAID is an abbreviation for "Redundant Array of Inexpensive Disks". The RAID technology allows several hard disk drives (HDD) to be handled collectively.

RAID can configure several HDDs as a single array (disk group) to operate the HDDs effectively. This can bring higher performance than a single HDD of a large capacity.

The RAID Controller (MegaRAID) has a feature to divide a single disk group into several logical drives (virtual disks). Operating system recognizes these virtual disks as if it were a single hard disk drive. Operating system accesses to more than one hard disk drive configuring a disk group in parallel.

Some RAID levels can recover data from remaining data and parity by using rebuild feature if an error occurs in a single HDD. This can provide high reliability for the system.

RAID Levels

The record mode enabling the RAID feature includes several levels. Among the levels, the RAID Controller (MegaRAID) supports RAID levels 0, 1,5,6,10 and 50.
The number of hard disk drives required to create a disk group varies depending on the RAID level as shown in the table below.

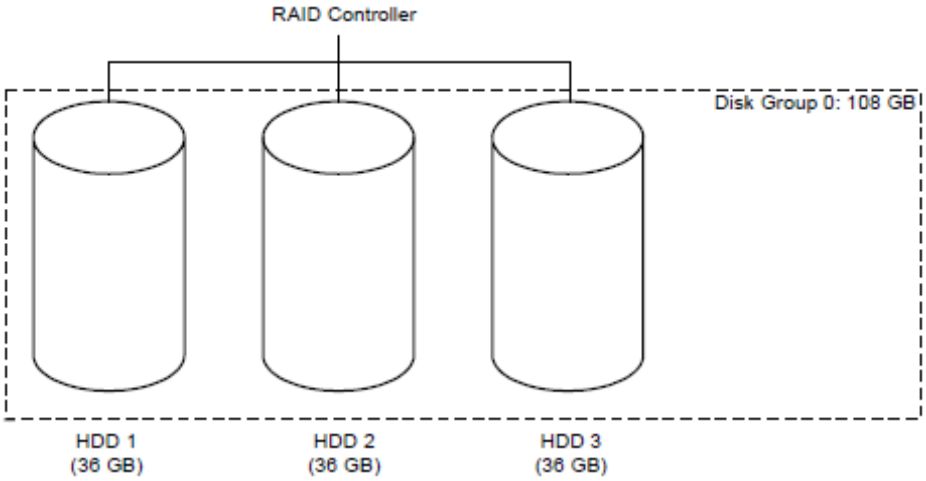
RAID level	Number of required HDDs	
	Min.	Max.
RAID0	1	8
RAID1	2	2
RAID5	3	8
RAID6	3	8
RAID10	4	8
RAID50	6	8

NOTE:
For details of the RAID levels, refer to "RAID Levels" described later in this chapter.

Disk Group

A disk group is configured with more than one HDDs.
The allowable number of disk groups is equal to the number of HDDs.

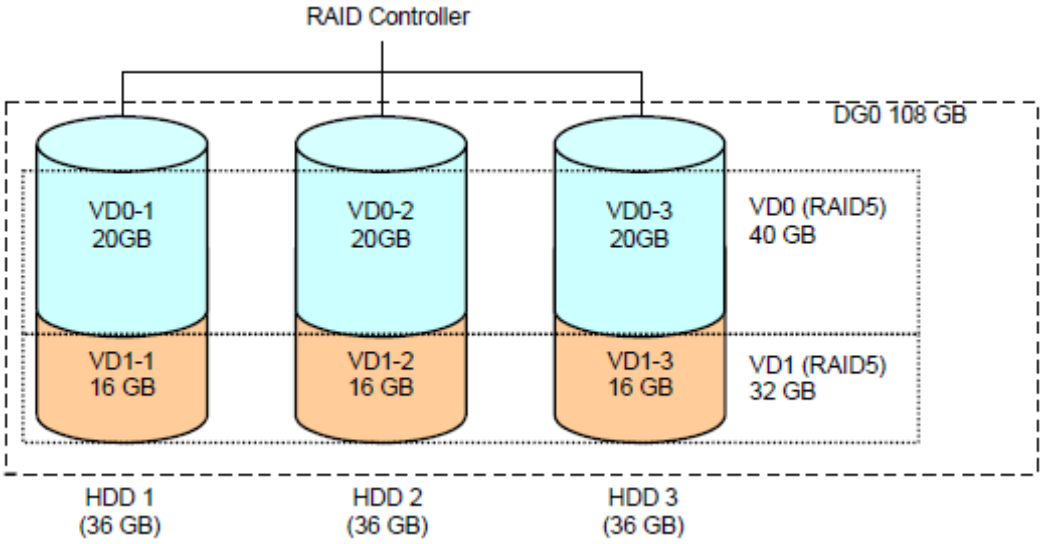
The figure below shows a sample configuration. The three HDDs are connected to the RAID Controller (MegaRAID), creating one disk group (DG).



Virtual Disk

Virtual disk is a logical drive defined in disk group. It is recognized as a physical drive by OS. The allowable number of virtual disks is up to 16 per disk group, or up to 64 per controller.

The figure below shows a sample configuration in which the RAID Controller (MegaRAID) is connected with three HDDs, creating one Disk Group. Two RAID5 virtual disks (VD) are defined in the Disk Group.



Parity

The parity means redundant data. A single set of redundant data is created from the data saved in more than one HDD.
The created redundant data is used for data recovery when a HDD is defected.

Hot-Swap

The hot-swap enables a HDD to be removed (or replaced) under system operation.

Hot Spare

The hot-spare is prepared as an auxiliary HDD substituting for a defected HDD included in a disk group which is configured at a redundant RAID level. Detecting a HDD fault, the system disconnects the HDD (or makes it offline) and starts rebuild using the hot-spare.

NOTE:
For standby rebuild (rebuild using hot-spares), refer to "Features of RAID Controller (MegaRAID)".

RAID Level

This section describes particulery the characteristics of the RAID levels suppurted by the RAID controller (MegaRAUD).

Characteristics of RAID Levels

The table below lists the characteristics of the RAID levels.

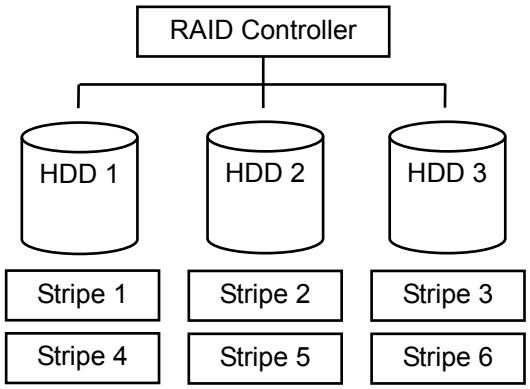
Level	Function	Redundancy	Characteristics
RAID0	Striping	No	· Data read/write at the highest rate · Largest capacity · Capacity: (capacity of single HDD) × (number of HDDs)
RAID1	Mirroring	Yes	· Two HDDs required · Capacity: capacity of single HDD
RAID5	Striping of both data and redundsant data	Yes	· Three HDDs required · Capacity: (capacity of single HDD) × ((number of HDDs)-1)
RAID6	Striping of both data and redundsant data	Yes	· Three or more HDDs required · Capacity: (capacity of single HDD) × ((number of HDDs) / 2)
RAID10	Spanning of RAID1	Yes	· Four or more HDDs required · Capacity: (capacity of single HDD) × ((number of HDDs) / 2)
RAID50	Spanning of RAID5	Yes	· Six HDDs required · Capacity: (capacity of single HDD) × ((number of HDDs) - 2)

RAID0

In RAID0, data to be recorded is distributed to HDDs. The mode is called "striping".

In the figure below, data is recorded in stripe 1 (disk 1), stripe 2 (disk 2), and stripe 3 (disk 3)… in the order. Because RAID0 allows all HDDs to be accessed collectively, it can provide the best disk access performance.

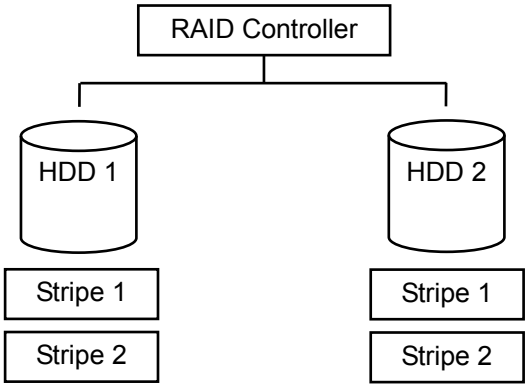
IMPORTANT:
RAID0 cannot have data redundancy. If a HDD is defected, the data saved in the HDD cannot be recovered.



RAID1

In the RAID1 level, data saved in a HDD is written to another HDD without change. The mode is called "mirroring".

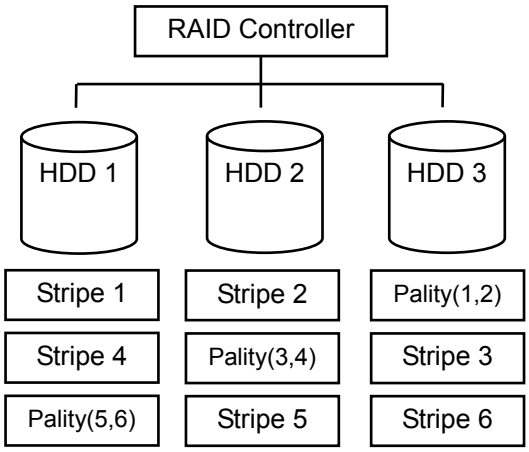
When data is written onto a single HDD, the same data is written onto another HDD. If either of the HDDs is defected, the other HDD containing the same data can substitute for the defected HDD. Thus the system can continue to operate without interruption.



RAID5

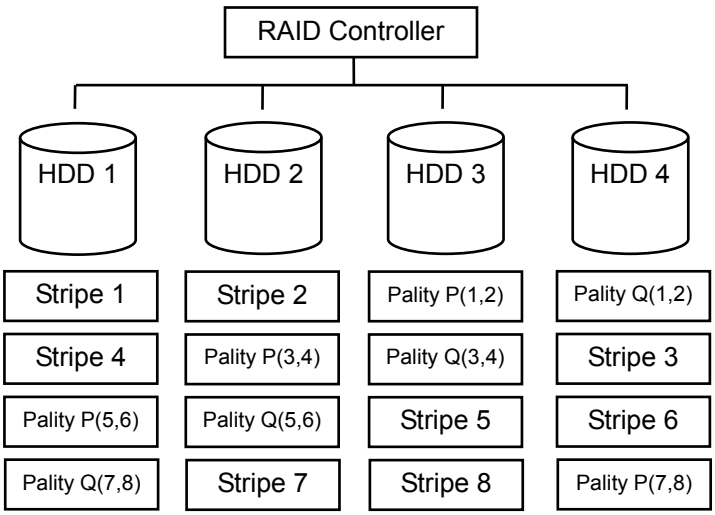
In RAID5, data is distributed to HDDs by striping and, at the same time, the parity (redundant data) is distributed to the HDDs. This mode is called "striping with distributed parity".

Each of stripe x, stripe x+1, and parity (x, x+1) created from stripe x and stripe x+1 is written onto a specific HDD. Accordingly, the total capacity assigned to the parity is just the same as the capacity of a single HDD. If any one of the HDDs configuring a logical drive is defected, data is still available with no problems.



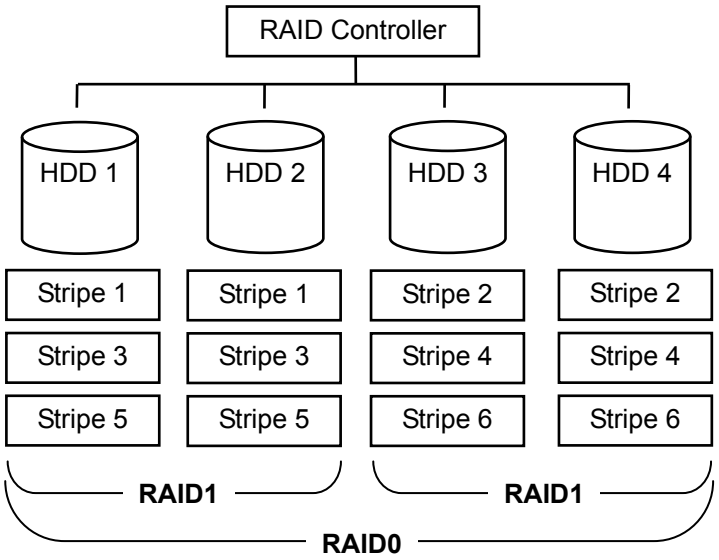
RAID6

RAID 6 extends RAID 5 by adding an additional parity block (Q) created by different calculation method such as weighting by some factor, and thus uses block-level striping with two parity blocks distributed across all the member disks. This mode is called "striping with duplex and distributed parity". Accordingly, the total capacity assigned to the parity is just the same as the capacity of two HDDs. If two of the HDDs configuring a logical drive are defective, data is still available.



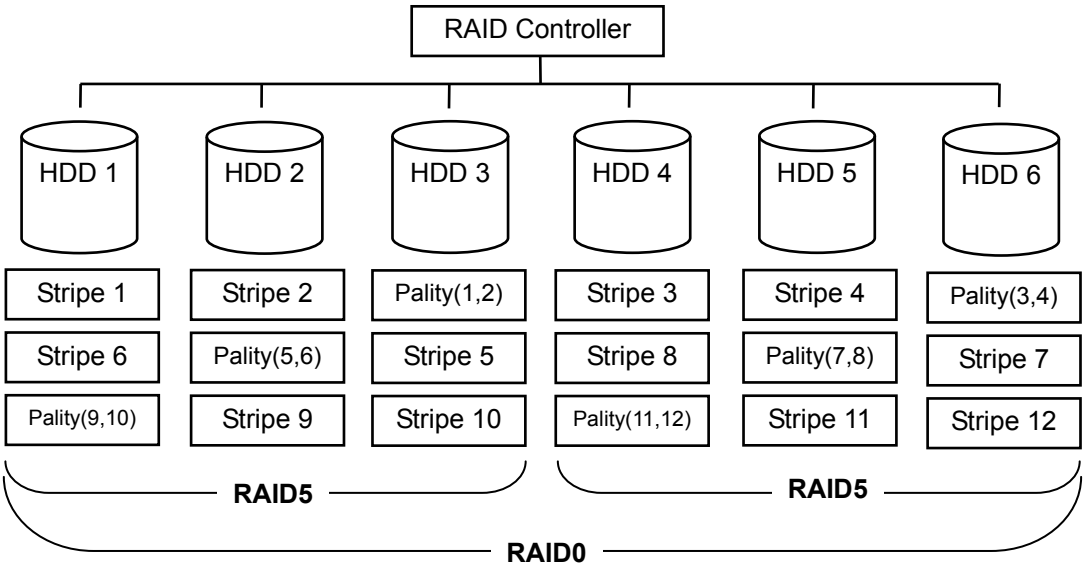
RAID10

Data to be recorded is distributed to two HDDs in mirroring mode. Then, each mirrored data is written onto HDD by striping. Owing to this feature, high disk access performance of RAID0 and, in addition, high reliability of RAID1 can be achieved.



RAID50

Data is distributed to HDDs by striping with distributed parity, and then written onto HDDs by striping. Owing to this feature, high disk access performance of RAID0 and, in addition, high reliability of RAID5 can be achieved.



Features of RAID Controller (MegaRAID)

This section describes the features of the RAID Controller (MegaRAID).

Rebuild

If a HDD is defected, the rebuild feature can recover the data in the defe

Manual Rebuild

The manual rebuild can be performed by using WebBIOS or Universal RAID Utility, the management utility of the RAID Controller (MegaRAID). Select a HDD and start the rebuild manually.

Auto Rebuild

The RAID Controller (MegaRAID) can automatically start the rebuild without use of any utility such as Universal RAID Utility.

The auto rebuild includes two types as follows:

- Standby rebuild
  Automatic rebuild by using hot-spares. In the configuration including hot-spares, the rebuild is performed automatically if a HDD assigned to a virtual disk is defected.

- Hot-swap rebuild
  Automatic rebuild by hot-swapping defected HDD.



When executing Rebuild, note that
* Use the new HDD which has the same capacity, the same performance(rpm), and the same specification as the old one which is replaced because of a failure/error.
* While Rebuild, the system perforamance might be down.
* While Rebuild, don't shut down or reboot the system.
  If the power was OFF accidentally while Rebuild, Power ON the system as soon as possible. Then Rebuild will be restarted automatically.
* More than 90 seconds interval is required between the timing of removing the old HDD and the timing of inserting the new one.
* If Hot-swap rebuild does not work well,try Manual rebuild.

Needed time for Rebuild

Here describes the sample time for Rebuild while few accesses to the HDDs in the system.The more the accesses are, the more the time is.

RAID Level	number of HDD	HDD Capacity	
		146GB	300GB
Raid1	2	18min	50min
Raid5	3	18min	50min
	4	19min	56min
	5	18min	51min
	6	18min	53min
Raid6	4	21min	56min
	6	18min	53min
Raid10	4	20min	51min
	6	18min	53min
Raid50	6	18min	53min

Patrol Read

The patrol read gives the read & verify test in the entire area of HDDs. It can be performed for all HDDs assigned to virtual disks and hot-spares.

The Patrol Read allows subsequent defects of HDDs to be detected and repaired.

For HDDs configuring redundant virtual disks or those assigned to hot-spares, error sectors detected during Patrol Read can be repaired.

IMPORTANT:
Note the following for the patrol read:
●To change settings of Patrol Read, use Universal RAID Utility.
●If the system is restarted while running Patrol Read, Patrol Read resumes from that point.

Consustency Check

The Consistency Check is used to check consistency among virtual drives. It is available for redundant virtual drives except for RAID0.

Consistency Check can be performed through WebBIOS or Universal RAID Utility.

Consistency Check performs not only consistency check but also repair of error sectors. Accordingly, it can be used as preventive maintenance.

IMPORTANT:
Note the following for Consistency Check:
● During Consistency Check, the processing rate is decreased due to heavy load.
● If the system is restarted, the Consistency Check is aborted. However, the Consistency Check resumes after restart.
● For scheduled execution of Consistency Check, use WebBIOS.

Background Initialize

The Background Initialize is automatically executed when RAID5 virtual disk is created in the disk group composing of five or more HDDs.
The Background Initialize performs the parity generation processing in the background to the area not initialized. The processing is equivalent to that of Consistency Check.

However, the Background Initialize is not performed in the following cases.

- ●Full Initialize has already been executed and completed normally before executing Background Initialize.
  (*) Full Initialize is a function to clear the entire area of a virtual disk with "0".

- ●Consistency Check has already been executed and completed normally before executing Background Initialize.

- ●Rebuild has already been executed and completed normally before executing Background Initialize (for RAID5 only).

- ●"Yes" is specified for "Disable BGI" in VD Definition.

- ●Virtual disk is in degraded or offline state.

The Background Initialize is executed again if any of the following cases occurred in the virtual disk on which the Background Initialize has completed.

- ●When the virtual disk is degraded or offline, you execute Make Online to HDD being in offline status, and the virtual disk becomes Optimal state.

- ●When you replace the RAID Controller with the maintenance component or others.

- ●When you execute Reconstruction to existing virtual disk to make RAID5 VD with five or more HDDs.

INPORTANT:
Note the following for Background Initialize:
- **During Background Initialize, the processing rate is decreased due to heavy load.**
- **Background Initialize will resume a few minutes later even if it is interrupted.**

Reconstruction

The reconstruction feature is used to change configuration and/or RAID level of existing virtual disk. The Reconstruction contains the following three features, however, the RAID Controller (MegaRAID) supports "Migration with addition" only.

IMPORTANT:
Use WebBIOS for Reconstruction. Universal RAID Utility does not support Reconstruction.

Removed physical drive

Unsupported.

Migration only

Unsupported.

Migration with addition

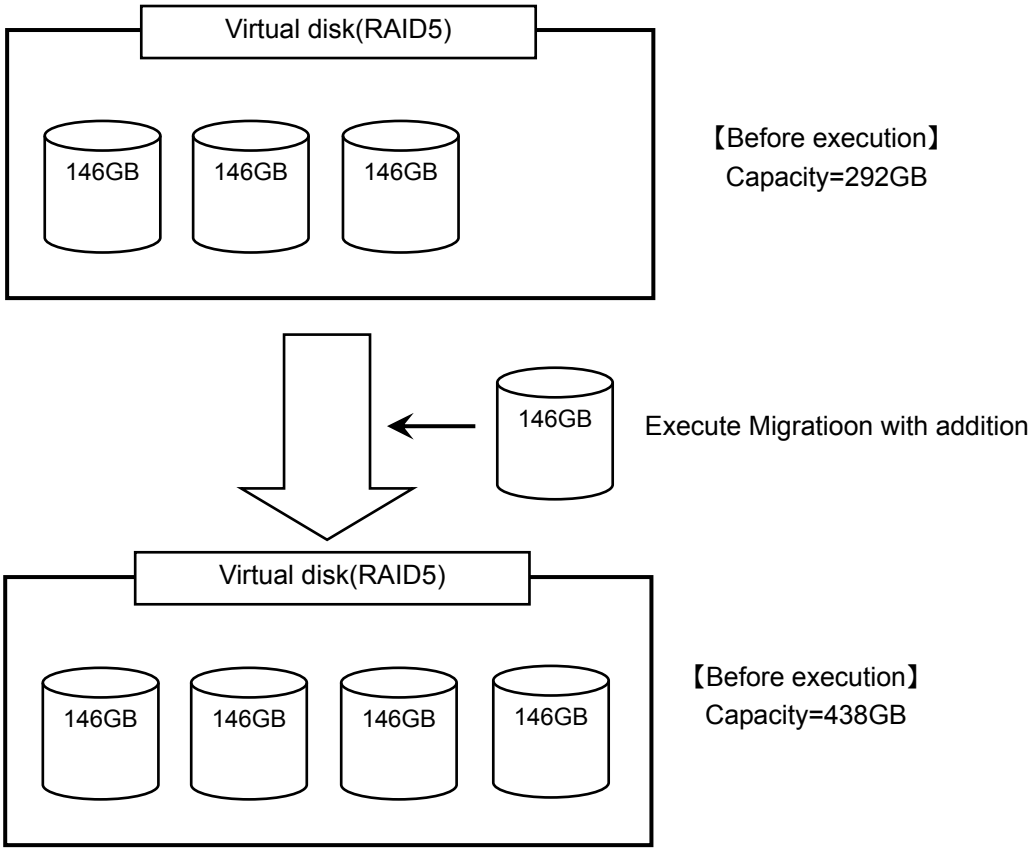
Use this feature to add HDDs to existing virtual disk. The execution patterns are as shown below (: Number of HDDs to be added).

Before execution		After execution		Description
RAID level	Number of HDDs	RAID level	Number of HDDs	
RAID0	X	RAID0	X+α	Capacity increased: equivalent to α HDDs
RAID0	1	RAID1	2	Capacity remains unchanged.
RAID0	X	RAID5	X+α	Capacity increased: equivalent to α-1 HDDs
RAID1	2	RAID0	2+α	Capacity increased: equivalent to α+1 HDDs
RAID1	2	RAID5	2+α	Capacity increased: equivalent to α HDDs
RAID5	X	RAID0	X+α	Capacity increased: equivalent to α+1 HDDs
RAID5	X	RAID5	X+α	Capacity increased: equivalent to α HDDs

IMPORTANT:
Note the following for the Reconstruction:
- **Be sure to make backup copy of data and perform Consistency Check before starting Reconstruction.**
- **The Reconstruction is disabled in the configuration where several virtual disks are defined in one disk group**
- **During Reconstruction, the processing rate is decreased due to heavy load.**
- **The Reconstruction can be performed for the degraded virtual disk. However, it is recommended to execute Rebuild to recover the virtual disk, then execute Reconstruction.**
- **During Reconstruction, do not shutdown or reboot the server.**
- **In some configuration, Background Initialize may start automatically upon completion of Reconstruction.**

Ex: Migration with addition for RAID5 virtual disk

The figure below shows an example of adding a single 146GB HDD to a RAID5 virtual disk configured with three 146GB HDDs.



Before Using WebBIOS

Read the following sections describing supported functions and precautions before using WebBIOS.

Supported Function

- Indication of model name and capacity of hard disk drive
- Indication of HDD allocation status
- Indication of HDD allocation status
  - Setting of RAID level
  - Setting of Stripe Block size
  - Setting of Read Policy/Write Policy/IO Policy
- Indication of configuration information and status of virtual disk
- Removal of virtual disk
- Clearing of configuration
- Execution of initialization
- Execution of Consistency Check
- Execution of manual rebuild
- Execution of reconstruction

Notes

1. The HDDs configuring the disk group should have the same capacity and rotation speed.
2. Be sure to execute Consistency Check after creating VD.
3. When installing an OS in VD under the RAID Controller (MegaRAID), create a VD dedicated to OS installation.
4. Mouse is disabled in WebBIOS.
   Use **Tab** to move cursor, and **Enter** to determine it. To change values in pull-down menu, use **Up** and **Down** cursor keys and press **Enter** to determine it.

5. The disk drive slot numbers written on the server front bay, the physical drive numbers shown in WebBIOS and those shown in Universal RAID Utility are identified as follows.

WebBIOS

Enclosure number and Slot number shown in Physical Drives box*

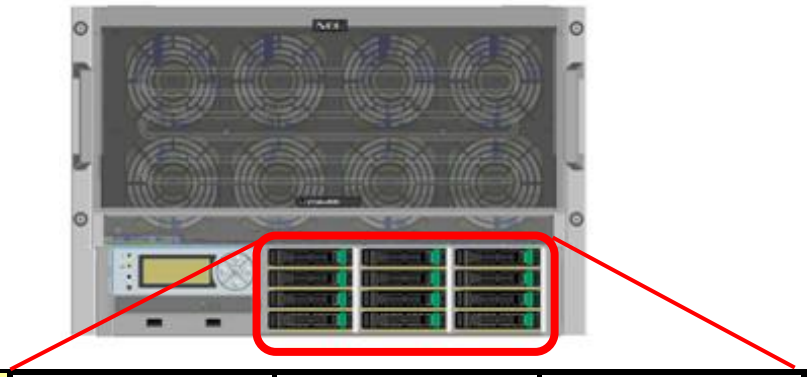
* "X:X:X" shown in Physical Drives box represents Connector number:Enclosure number:Slot number. With this server, the Connector number is not supported, thus, it is always indicated as "()". The Enclosure Number is always "1". The Slot number is the number on the drive tray of the server.

Universal RAID Utility

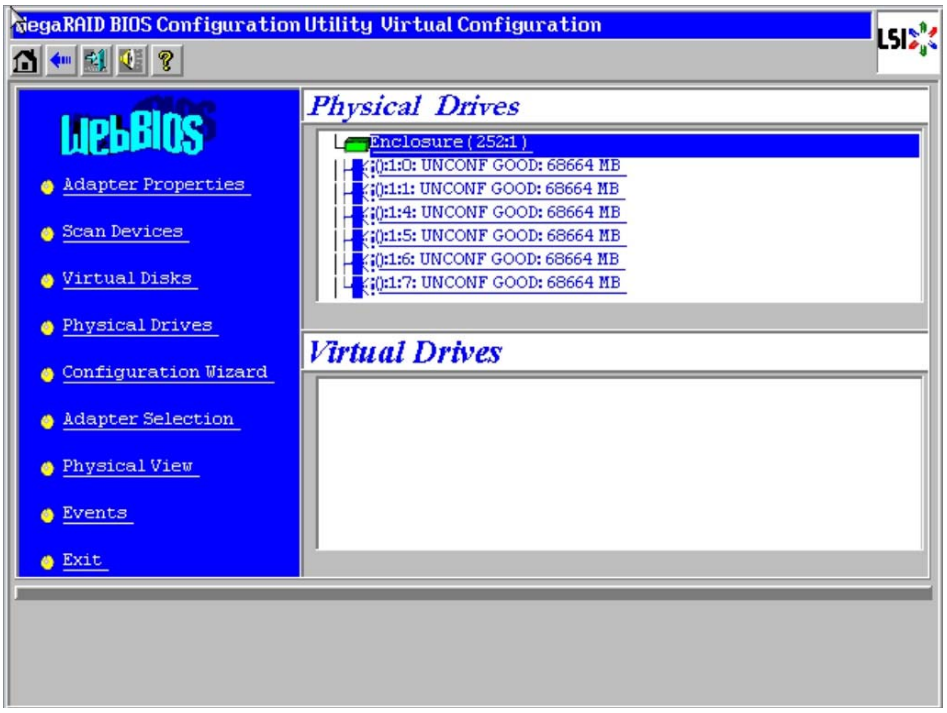
Enclosure number and Slot number shown in Physical Device Properties

Note that the slot numbers shown in Physical Drives box of WebBIOS are represented by the numbers beginning with 0, but those in Universal RAID Utility are numbers beginning with 1.

Slot numbers and their indications on utility software



Slot number of server	Slot#0	Slot#1	Slot#2
Indication on WebBIOS	( ):0:1	( ):1:1	( ):1:2
Indication on URU	Slot 1	Slot 2	Slot 3
Slot number of server	Slot#3	Slot#4	Slot#5
Indication on WebBIOS	( ):1:4	( ):1:5	( ):1:6
Indication on URU	Slot 5	Slot 6	Slot 7
Slot number of server	Slot#6	Slot#7	Slot#8
Indication on WebBIOS	( ):1:0	( ):1:1	( ):1:2
Indication on URU	Slot 1	Slot 2	Slot 3
Slot number of server	Slot#9	Slot#10	Slot#11
Indication on WebBIOS	( ):1:4	( ):1:5	( ):1:6
Indication on URU	Slot 5	Slot 6	Slot 7



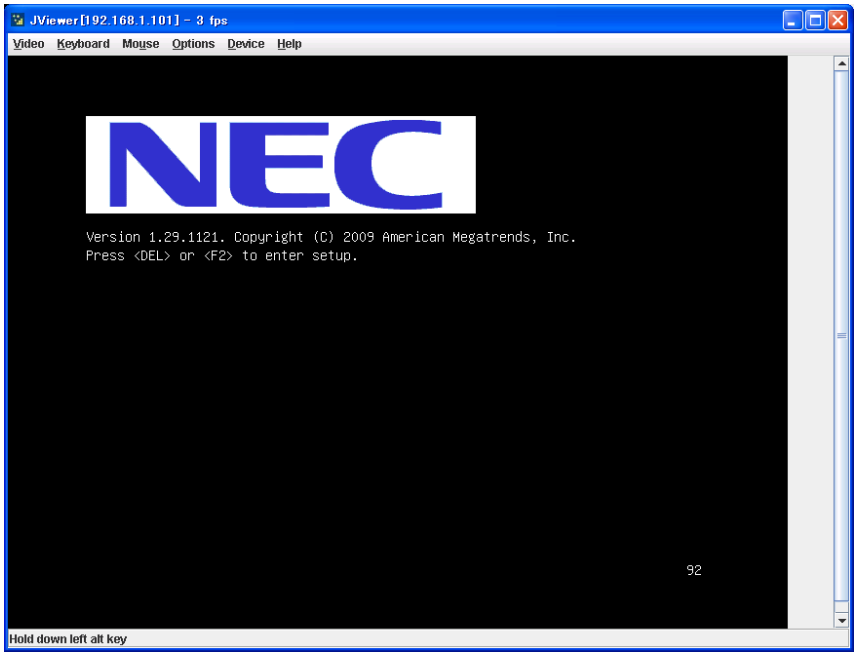
Display Screen for WebBIOS Physical Drives

Property Screen for Universal RAIDUtility Physical Devices

Using WebBIOS

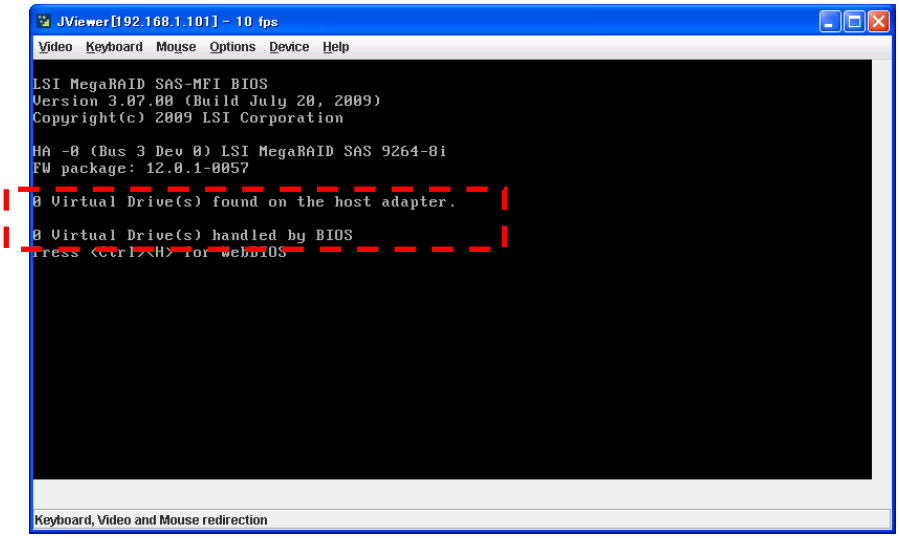
Starting WebBIOS

1. Press **F2 key** when the screen as shown below appears after powered on the server.

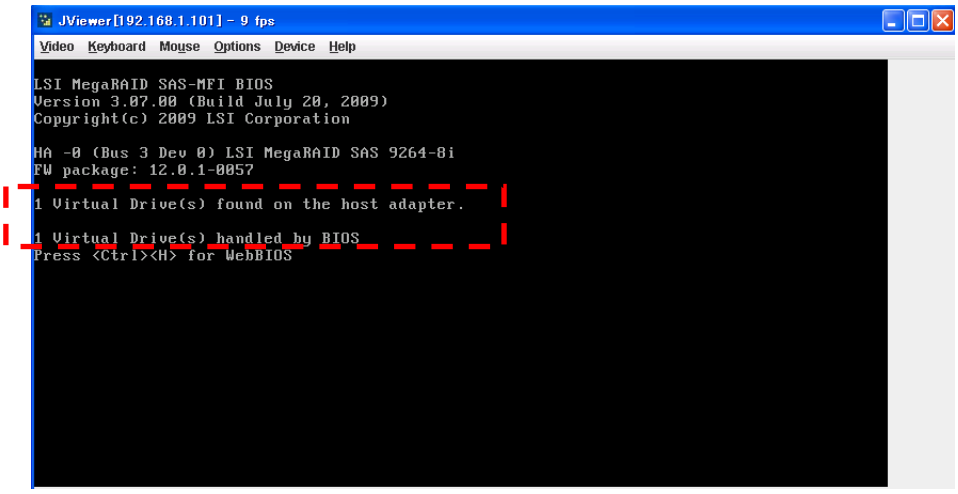


2. Press **CTRL + H** when the POST screen as shown below appears.

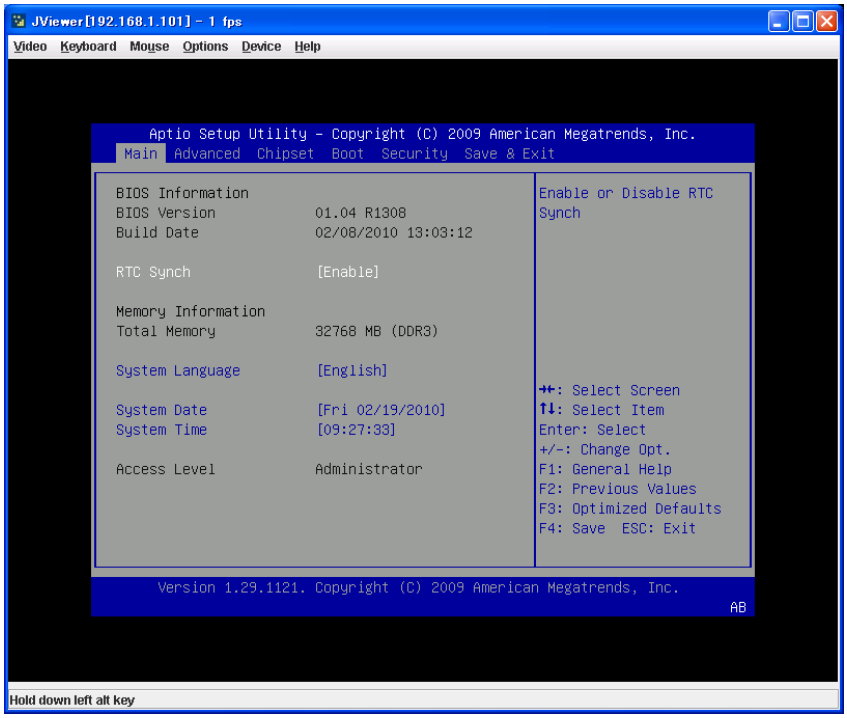
1)If it is the first time to configure RAID



2)If RAID has already been configured

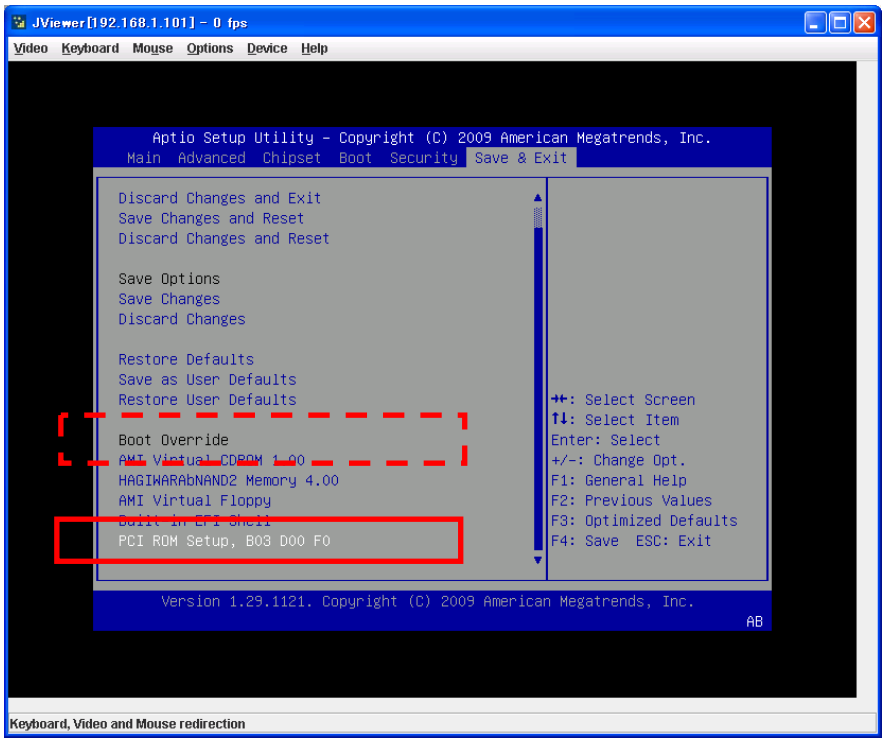


3. BIOS will start. Select "Save & Exit", then press **Enter**.

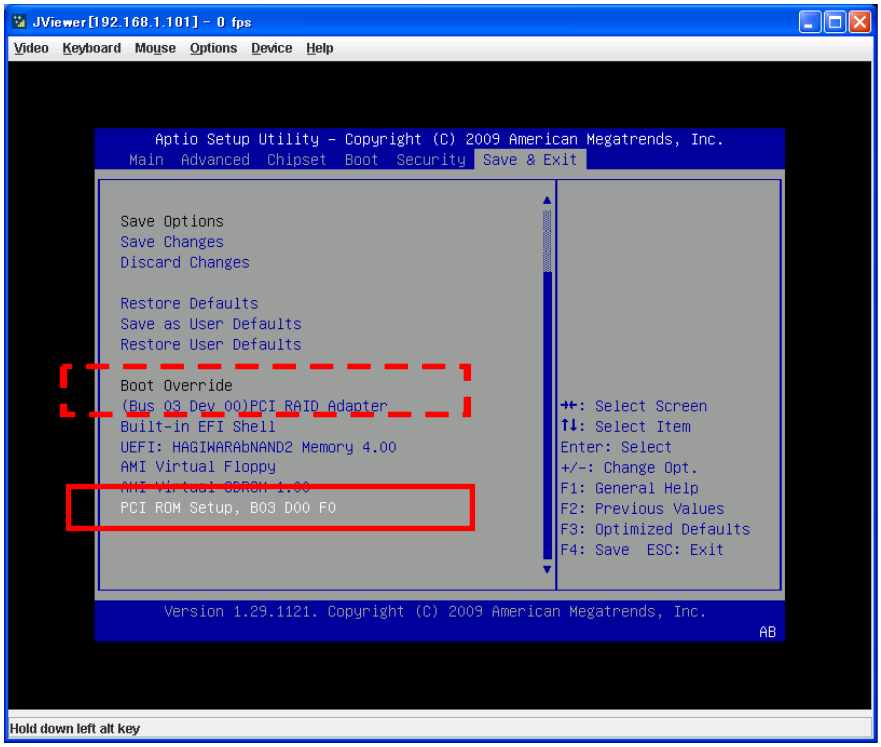


4. Select "PCI ROM Setup, B03 D00 F0" of [Boot Override], then press **Enter**. WebBIOS will start.

1)If it is the first time to configure RAID

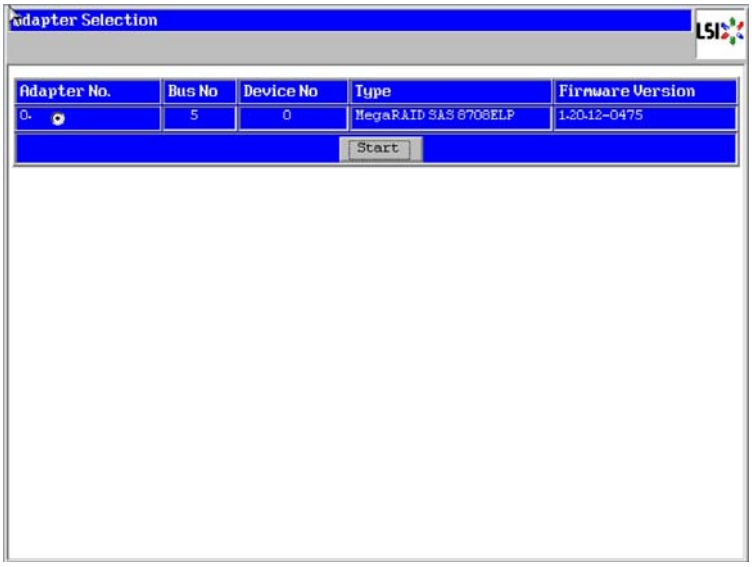


2)If RAID has already been configured



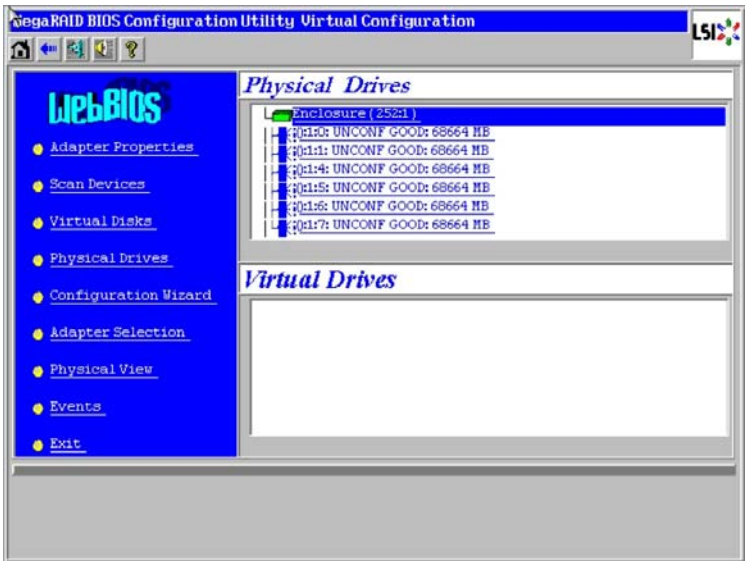
WebBIOS Home

WebBIOS Home is the menu to start the operation. Shown below is [Adapter Selection] screen that appears first on WebBIOS. Check if "Bus No 5" is selected as a controller to operate WebBIOS, then select [Start], and press **Enter**.



When the adapter is selected on [Adapter Selection], the following WebBIOS Home Menu appears.

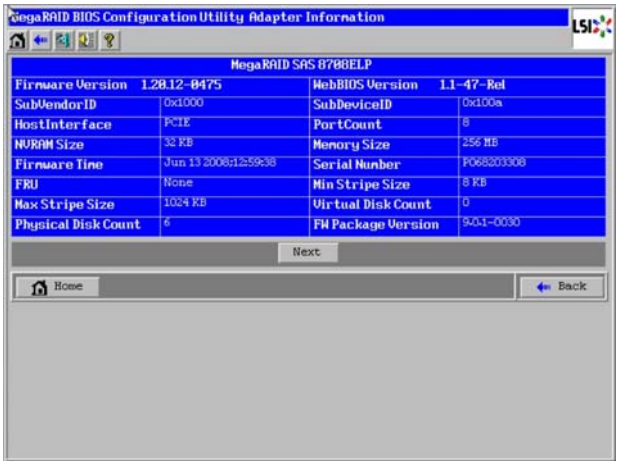
Physical Drives in the upper right box show the Physical Drives (PD) that are configured. Virtual Drives in the lower right box show the Virtual DISKs (VD) that are configured.



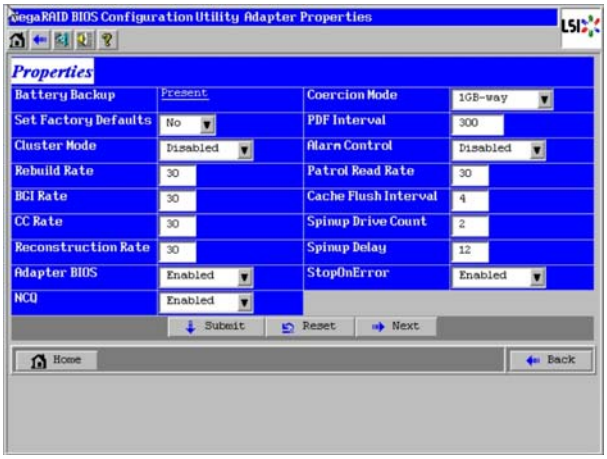
IMPORTANT:
"X:X:X" shown in Physical Drives box represents Connector number:Enclosure number:Slot number. With this server, the Connector number is not supported, thus, it is always indicated as "()". The Enclosure number is always "1". The Slot number is the number on the drive tray of the server.

Adapter Properties

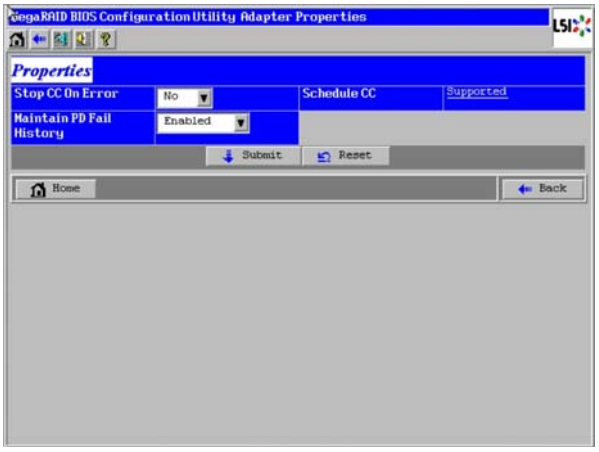
When you select [Adapter Properties] on WebBIOS Home Menu and press **Enter**, the configuration information is displayed. Using this menu, you can view and update the properties of an Adapter.



Select [Next] and press **Enter** to see the detailed settings of this controller.



The detailed settings is continued to the next page. Select [Next] and press **Enter** to view more information.



Default settings and their explanation of “Adapter Properties”

Item	Default	Description	Change
Battery Backup	Present None	Displays battery Properties. ·When battery is installed: Present ·When battery is not installed: None	—
Set Factory Defaults No	**[No]** Yes	Restores vendor's factory defaults.	Prohibited *1
Cluster Mode	**Disabled**	—	Prohibited
Rebuild Rate	**30**	Recommended value: 30	Permitted
Patrol Read Rate	**30**	Recommended value: 30	Permitted
BGI Rate	**30**	Recommended value: 30	Permitted
CC Rate	**30**	Recommended value: 30	Permitted
Reconstruction Rate	**30**	Recommended value: 30	Permitted
Adapter BIOS	**[Enabled]** Disabled	—	Prohibited
Coercion Mode	**[None]** 128MB-way 1GB-way	—	Prohibited
PDF Interval	**300**		Prohibited
Alarm Control	Disabled Enabled Silence	Disabled: Does not issue an alarm.	Prohibited
Cache Flush Interval	**4**	—	Prohibited
Spinup Drive Count	**2**	—	Prohibited
Spinup Delay	**12**	—	Prohibited
Stop On Error	**[Disabled]** Enabled	—	Prohibited
Stop CC On Error	**[No]** Yes	Specify the operation when an error was detection in Consistency Check. No: Recover and resume. Yes: Abort	Permitted
Maintain PD Fail History	Disabled **[Enabled]**	If the same HDD is inserted again,then it is treated as an error.	Permitted
Schedule CC	**Supported**	Set the scheduled consistency check.	Permitted

*1 Do not perform "Set Factory Defaults". If performed, the NEC's factory-set value will no longer be restored.

How to change setting value

On [Adapter Properties] screen, change a parameter to desired value, and then select [Submit] at the center of the screen and press **Enter** to determine the new value.

Buttery Status Screen

The status of "Battery Backup" is indicated as "Present". Selecting [Present] and pressing **Enter** opens the Battery Status screen as shown below.



IMPORTANT:
You cannot change values for "Auto Learn Period (days)", "Next Learn Time", and "Learn Delay Interval".

NOTE:
- **Status field shows "Charging" when the battery is in charged status. It shows "Discharging" when the battery is in discharged status.**
- **When powering on the server after replaced the battery, the Status may not immediately change to "Charging". In that case, power on the server for several hours, and check "Status" again.**

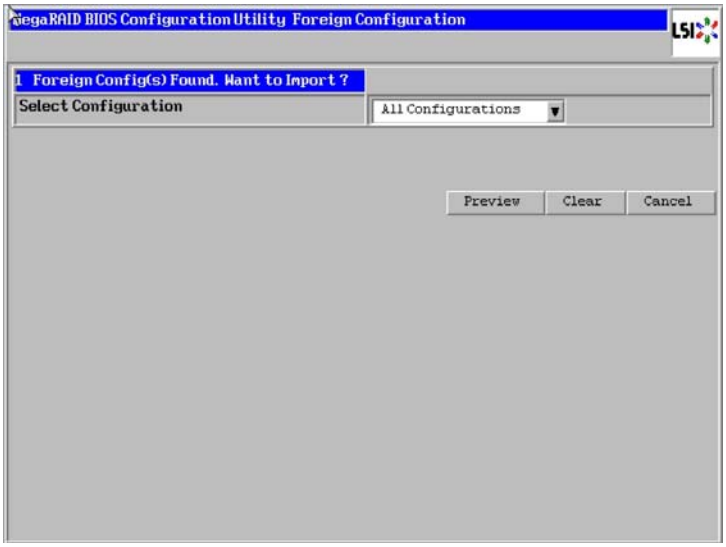
Scan Devices

When you select [Scan Devices] on WebBIOS Home Menu and press **Enter**, the HDDs connected are detected again. Use this feature when you have installed a new HDD additionally while the WebBIOS is running.

IMPORTANT:

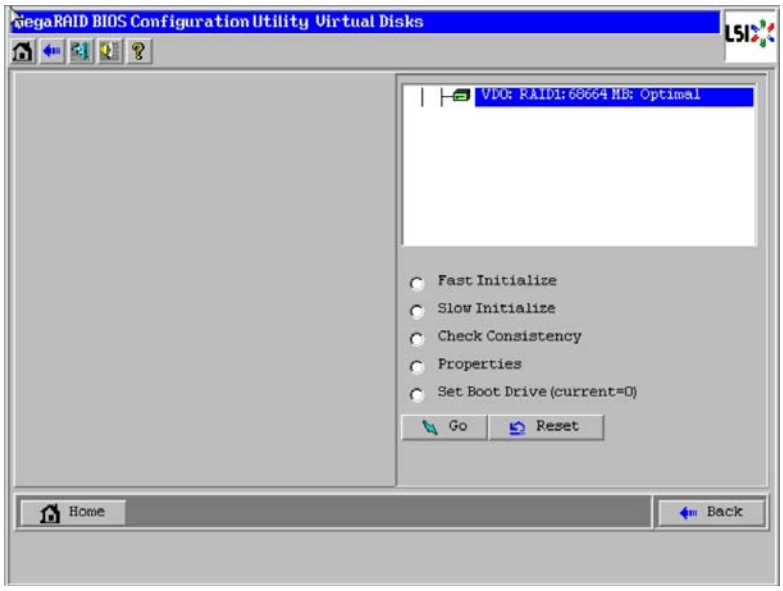
- **If the newly connected HDD contains another configuration information, [Foreign Configuration] screen as shown below appears. To use the HDD as new one, select [Clear] and press Enter to clear the configuration information in HDD.**

- **If you use Universal RAID Utility to configure a RAID system using the newly connected HDD containing another configuration information, first clear another configuration information using this Scan Devices feature.**
  (*) Universal RAID Utility does not have this feature.



Virtual Disks

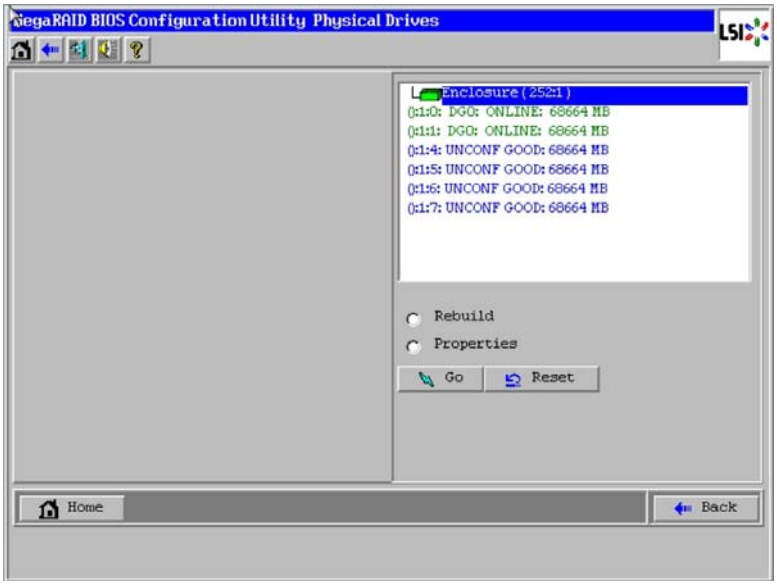
When you select [Virtual Disks] on WebBIOS Home Menu and press **Enter**, the screen for operating the VD that has already been configured.



IMPOTANT:
If no virtual disk exists, the upper right column of the screen will be blank. Use this menu only when a virtual disk exists.

Physical Drives

When you select [Physical Drives] on WebBIOS Home Menu and press **Enter**, the screen for operating the physical drive (HDD) appears.

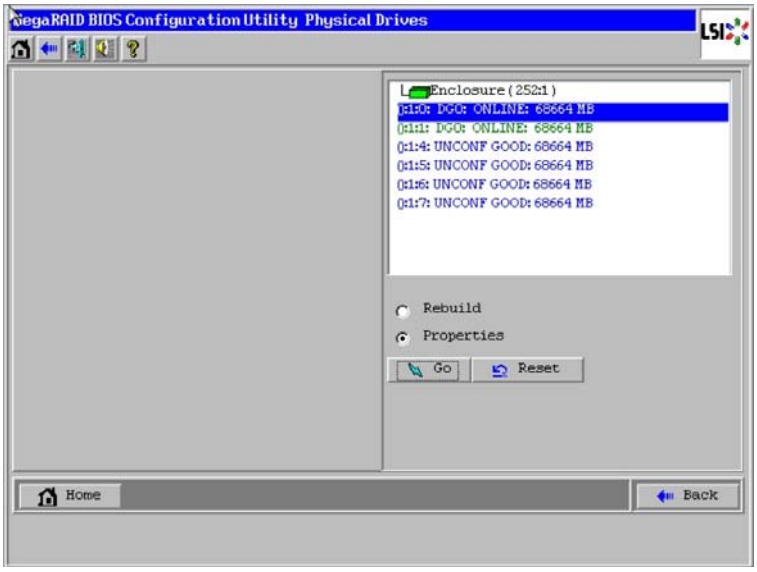


IMPORTANT:
If no physical drive (hard disk drive) exists, the upper right column of the screen will be blank. Use this menu only when a hard disk drive exists.

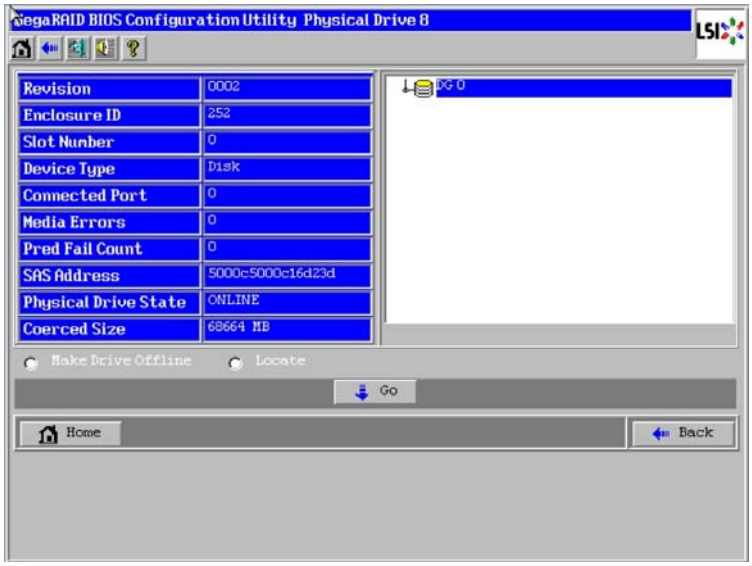
Physical Drives Properties

Take the following procedures to check Physical Drive Properties. Shown below is an example to check property of physical drive ():1:0.

1. Select the Physical Drive you want to check and press **Enter**.
2. Select the checkbox for [Properties] and press **Enter**.
3. Select [Go] and press **Enter**.



The Properties screen as shown below appears.



Configuration Wizard

Use this wizard to configure a RAID system using the HDDs connected. The detailed explanation of this feature is given in "Configuring Virtual Disk".

Adapter Selection

Select RAID Controller (MegaRAID).

Physical View / Logical View

If the virtual disk has been configured, DG (disk group) is displayed on WebBIOS Home Menu. Selecting [Physical View] and pressing **Enter** displays information for HDDs in DG. Selecting [Logical View] and pressing **Enter** displays virtual disk in DG.

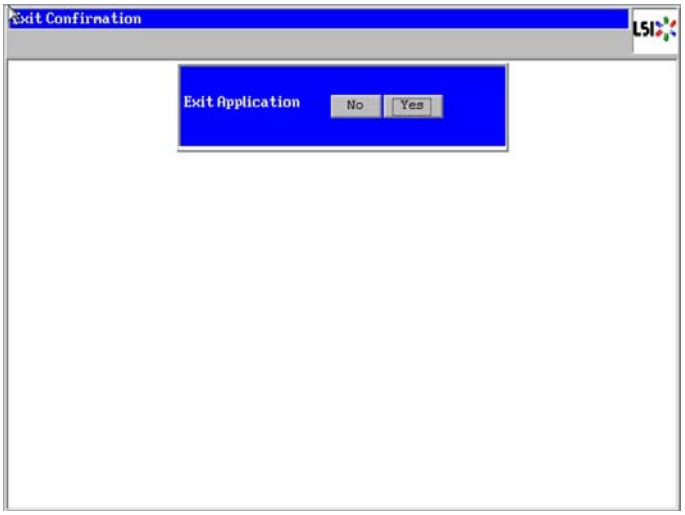
Events

The Events screen is used to confirm the system events.

IMPORTANT:
The RAID Controller (MegaRAID) does not support Events feature.

Exit

When you select [Exit] on WebBIOS Home Menu and press **Enter**, a confirmation screen to exitfrom WebBIOS is displayed. Select [Yes] and press **Enter** to exit from WebBIOS.



The screen as shown below appears when WebBIOS is terminated. Restart the server.

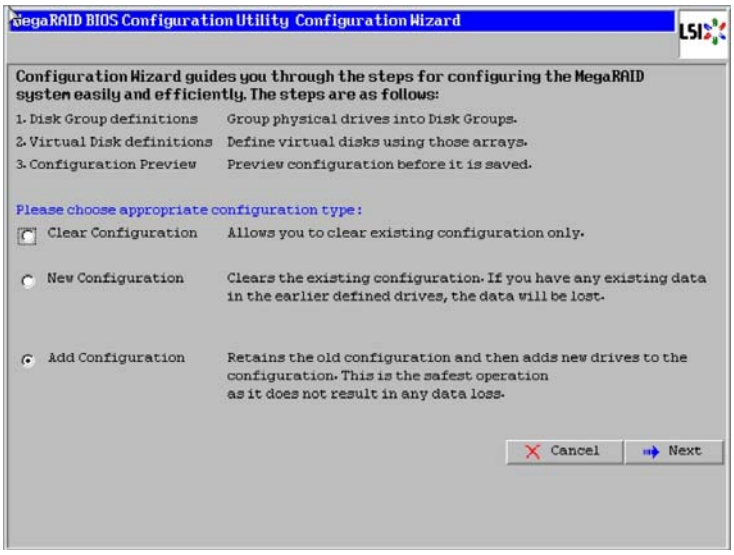


Configuring Virtual Disk

This section describes the procedures for configuration of VD (virtual disk) using WebBIOS.

Configuration Wizard

When you select [Configuration Wizard] on WebBIOS Home Menu and press **Enter**, the screen as shown below appears. Select the relevant operation, and select [Next] at lower right of the screen, then press **Enter**.

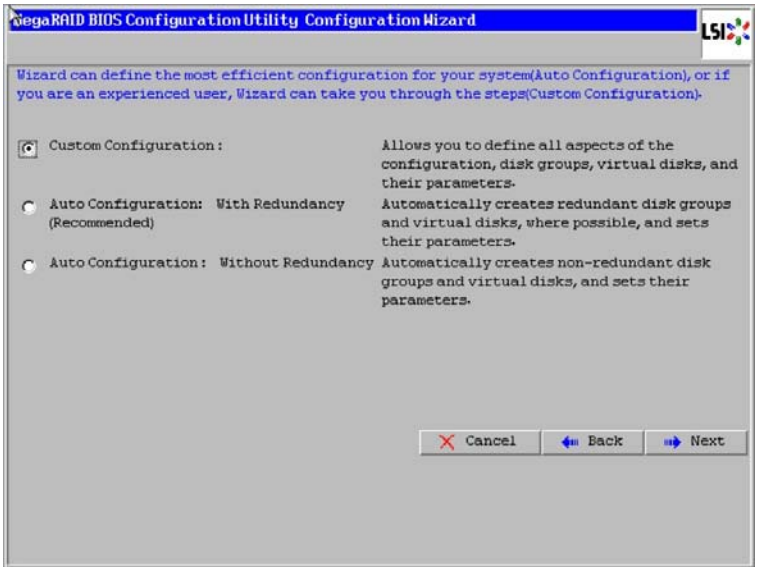


Clear Configuration: Allows to clear existing configuration.

New Configuration: Clears the existing configuration and creates a new VD. If you have any existing data in the earlier defined virtual disk, the data will be lost.

Add Configuration: Retains the old configuration and then adds new VD.

When you select [New Configuration] or [Add Configuration], the screen as shown below appears.



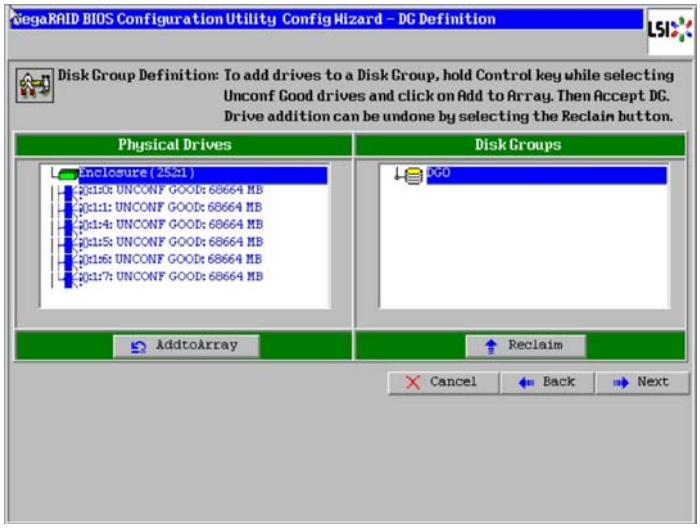
Custom Configuration: Allows you to define all aspects of the configuration, RAID level, size, and others.

Auto Configuration: with Redundancy Automatically creates redundant virtual disk.

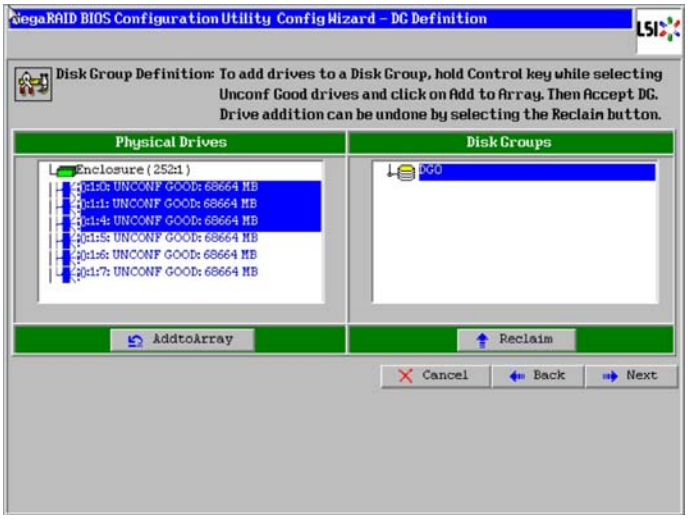
Auto Configuration : without Redundancy Automatically creates non-redundant virtual disk.

IMPOTANT:
"Auto Configuration with Redundancy" is supported only with the configuration composing of two hard disk drives.

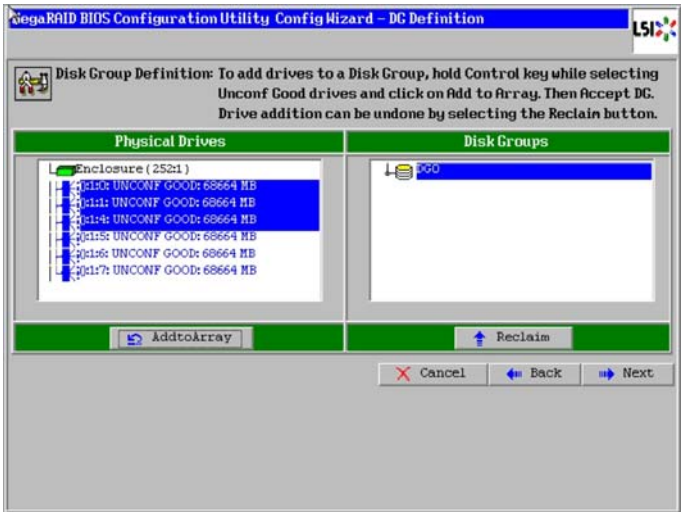
When you want to configure VDs in Custom Configuration, use this menu to define several physical drives (PD) as a disk group (DG).



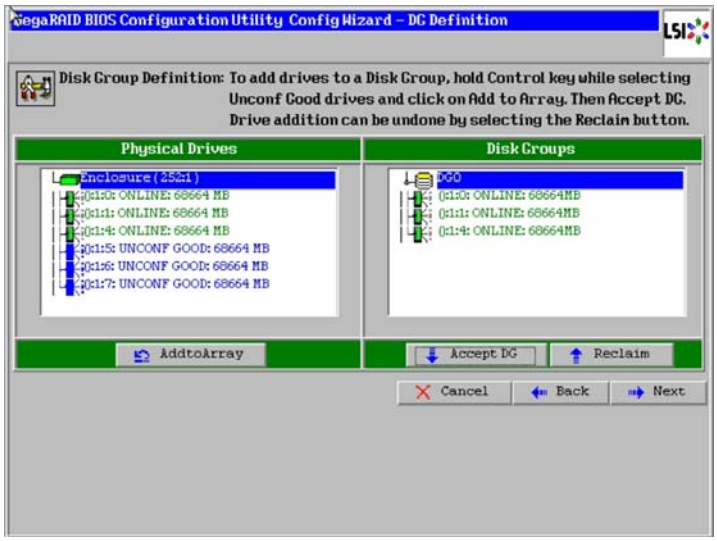
Select Physical Drives (hard disk drives) you want to add to a disk group using the up and down arrow keys while holding **Shift**.



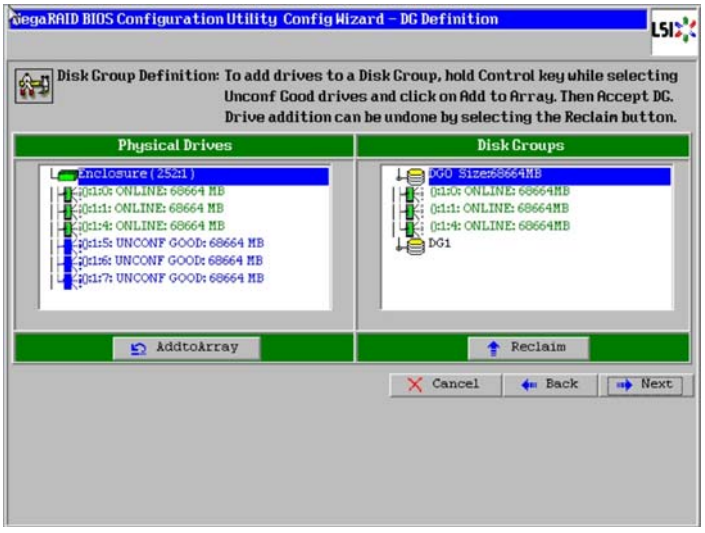
Upon completion of selection, select [Add to Array] at the lower left of the screen, then press **Enter**.



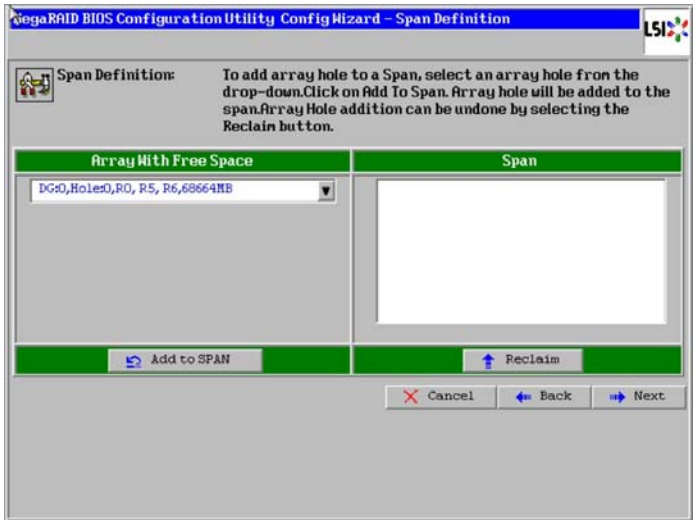
A new DG is defined in the Disk Groups frame. To define the new DG, select [Accept DG] at the lower right of the screen and press **Enter**.



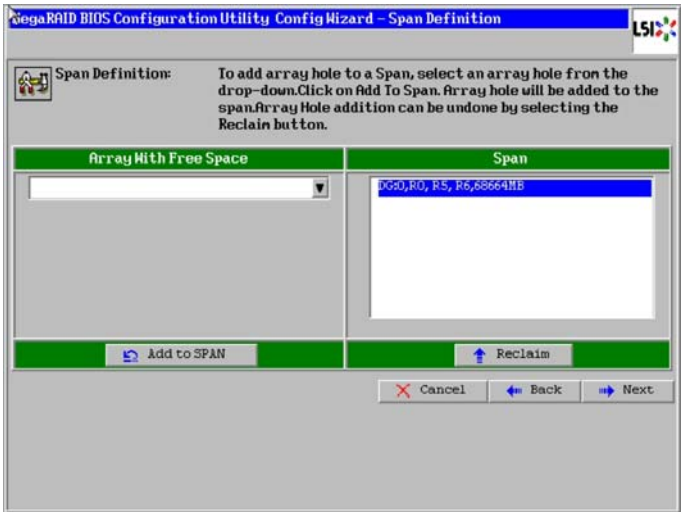
After the DG has been defined, select [Next] at the lower right of the screen, and press **Enter**.



Then, the Span Definition screen appears.



Select a DG to define VD from "Array With Free Space" frame, select [Add to SPAN], then press **Enter**. The DG is defined in the "Span" field to the right.



After the Span has been defined, select [Next] at the lower right of the screen, and press **Enter**.

IMPORTANT:

- **To configure RAID0, 1, or 5, perform Span Definition to a single DG only. If you need to perform Span Definition to several DGs, define VD for the first DG, then select the next DG to define VD.**
- **To configure RAID10 or 50, select several DGs containing the same number of HDDs for Span Definition.**
- **Span Definition cannot be performed to DGs containing the different number of HDDs.**

Define the virtual disk (VD) in DG that has been created in previous step. When DG was defined, [VD Definition] screen is displayed.
In the "Next LD, Possible RAID Levels" field, available RAID levels and maximum size for VD are displayed.



As an example, define a RAID5 VD of yyyyy MB.

1. Specify the necessary parameters in left columns.

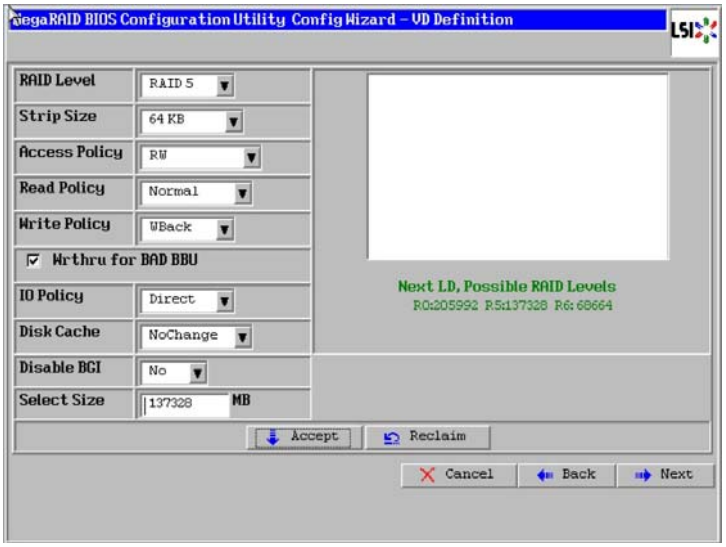
2. Enter "yyyyy" in "Select Size" field.

3. Upon completion of VD definition, select [Accept] at the lower center of the screen, and press **Enter**.

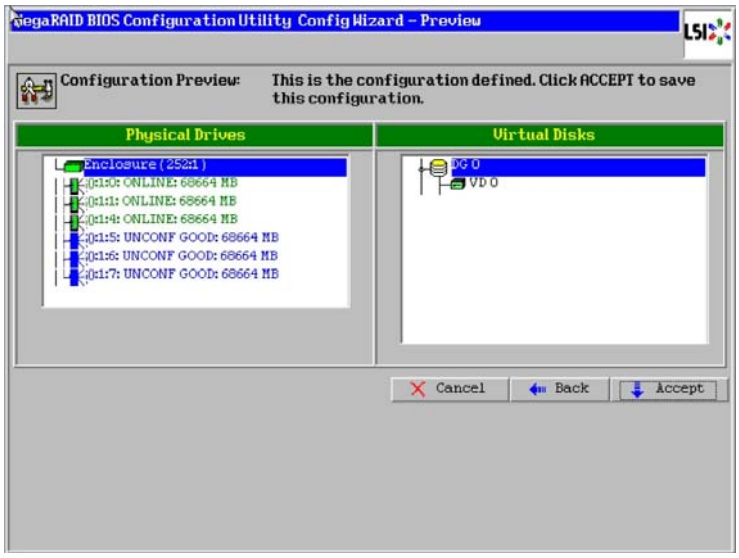
4. If you want to define another VD, select [Back], press **Enter**, and repeat steps starting from Span Definition screen.

5. Upon completion of VD definition, select [Next] and press **Enter**.

IMPORTANT:
You need to specify the size appropriate to "RAID Level". Enter the value smaller than that indicated in "Next LD, Possible RAID Levels".



6. VD 0 is created in DG 0 as shown in the screen below.



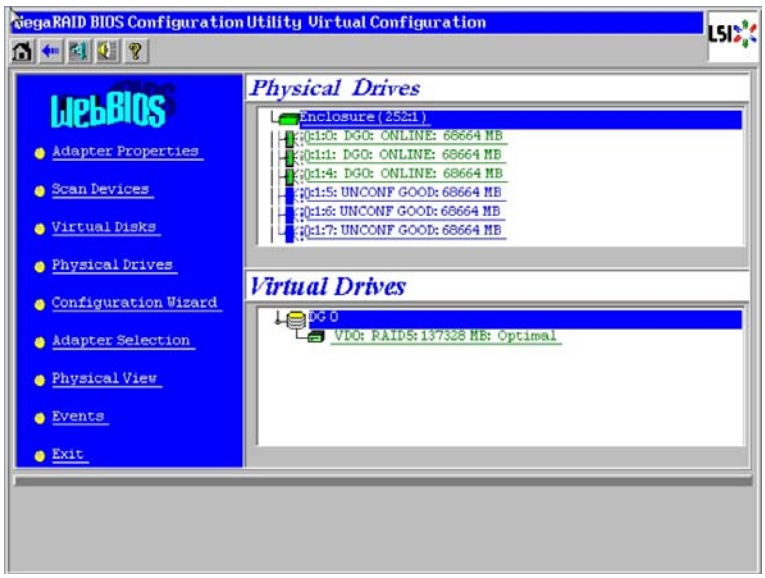
7. After making sure that the VD is created correctly, select [Accept] at the lower right of the screen and press **Enter**.

8. The confirmation message "Save this Configuration?" appears. Select "Yes" and press **Enter** to save the configuration.

9. The confirmation message "All data on the new Virtual Disks will be lost. Want to Initialize?" appears. Normally, select "Yes" and press **Enter**.

10. "Virtual Disks" operation screen is displayed. If no other operation is required, select [Home] at the lower left of the screen and press **Enter**.

11. The WebBIOS Home Menu is displayed. Virtual Disk you have created is displayed in the lower right frame of the screen.

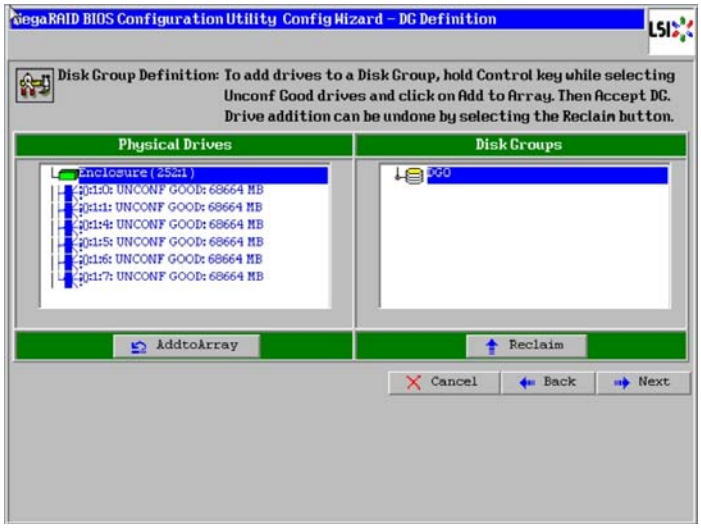


Configure SPAN

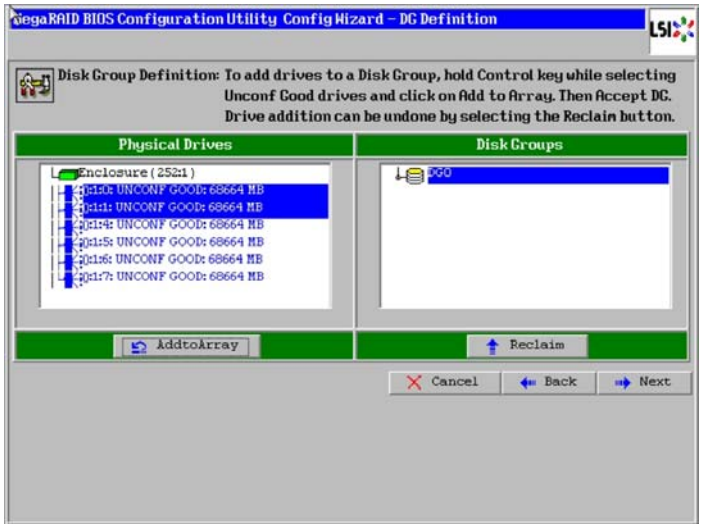
The following explains the sample procedure to configure RAID10 (spanning of RAID1) with four HDDs.

IMPORTANT:
Do not attempt to configure RAID00, or RAID60. They are not supported.

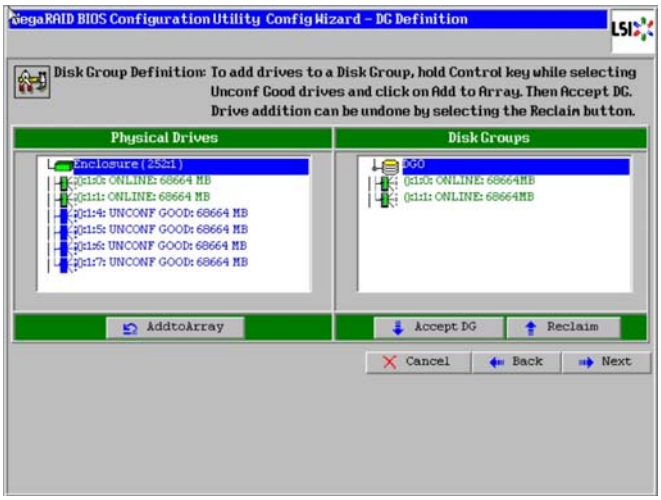
1. Select [Configuration Wizard] on WebBIOS Home Menu and press **Enter** to start Wizard.



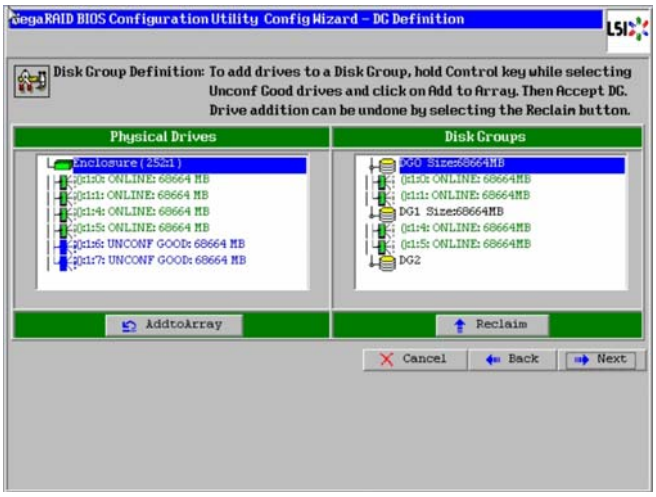
2. Select Physical Drives (hard disk drives) you want to add to a disk group using the up and down arrow keys while holding **Shift**.



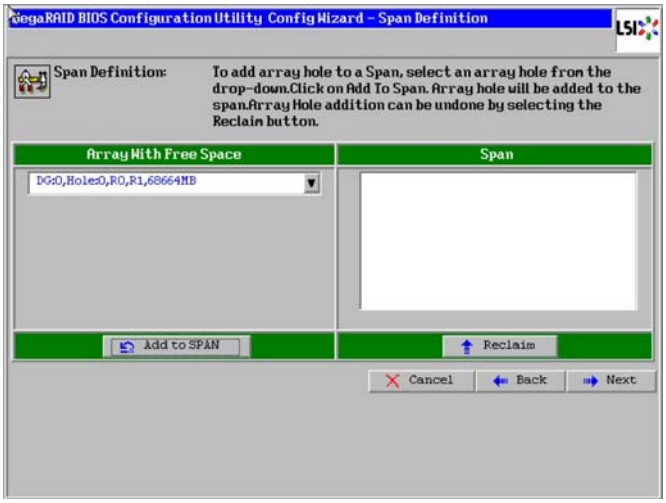
3. Upon completion of selection, select [Add to Array] at the lower right of the screen and press **Enter**. After making sure that the new DG has defined in Disk Groups frame to the right, select [Accept DG] and press **Enter**.



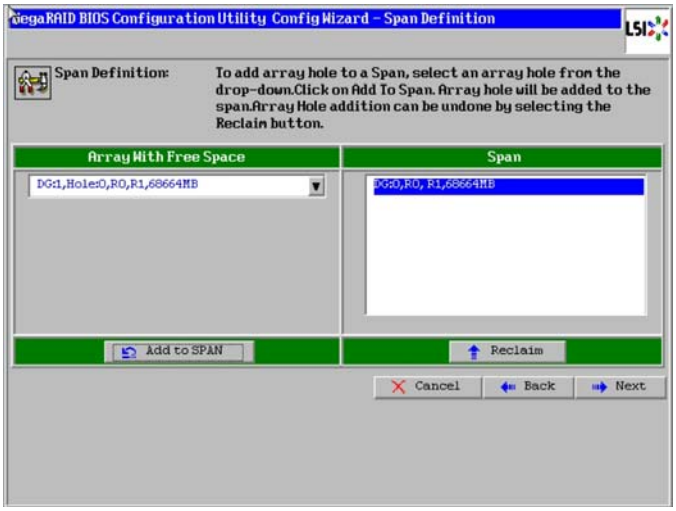
4. A new DG is defined in the Disk Groups frame. Define another DG in the similar procedures. After DGs have been defined, select [Next] at the lower right of the screen and press **Enter**.



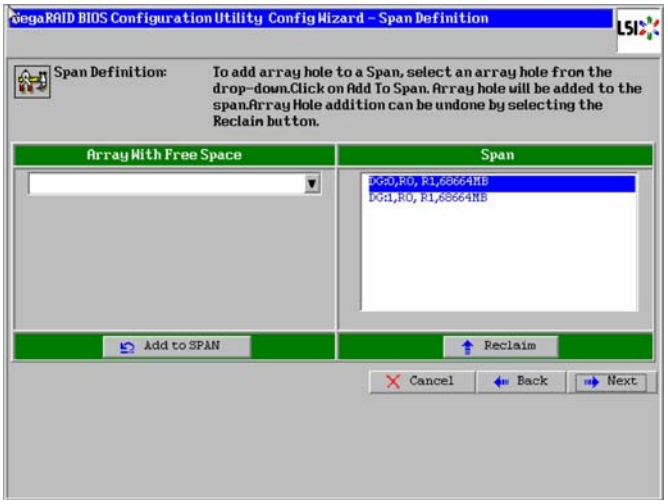
5. Configure RAID10 (spanning of RAID1) using the two DGs that have been created in previous step. When DGs were defined, [VD Definition] screen is displayed.



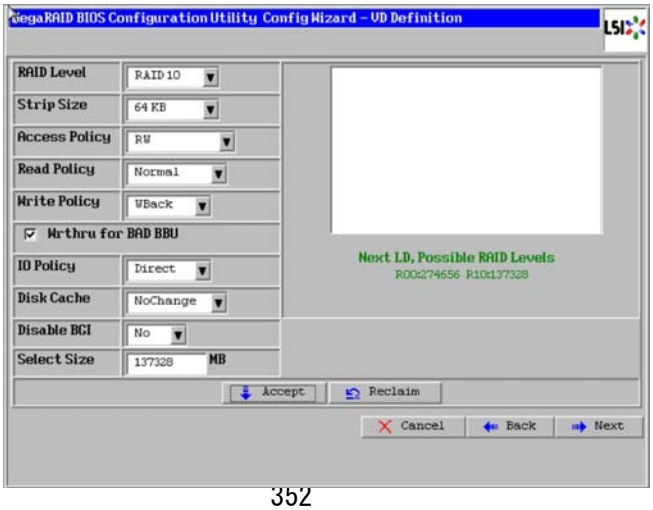
6. Select DG0 from "Array With Free Space" frame, then select [Add to SPAN] and press **Enter**. The DG is defined in the "Span" field to the right.



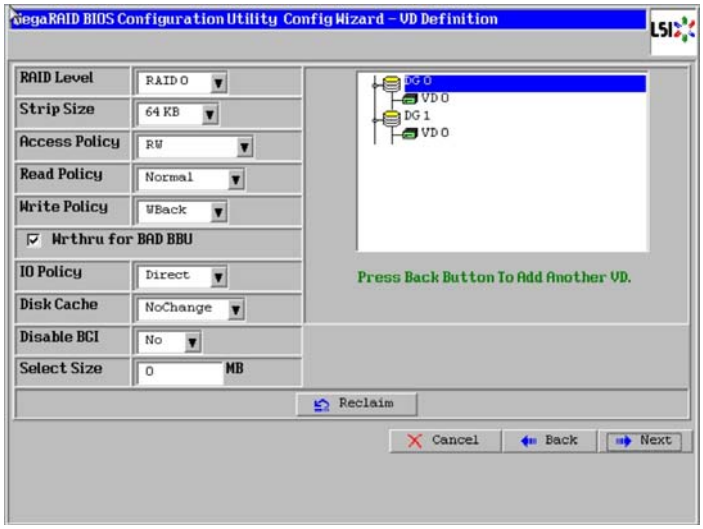
7. Then, select DG1 and select [Add to SPAN] and press **Enter**. When the two DGs are defined in the "Span" field to the right, select [Next] and press **Enter**.



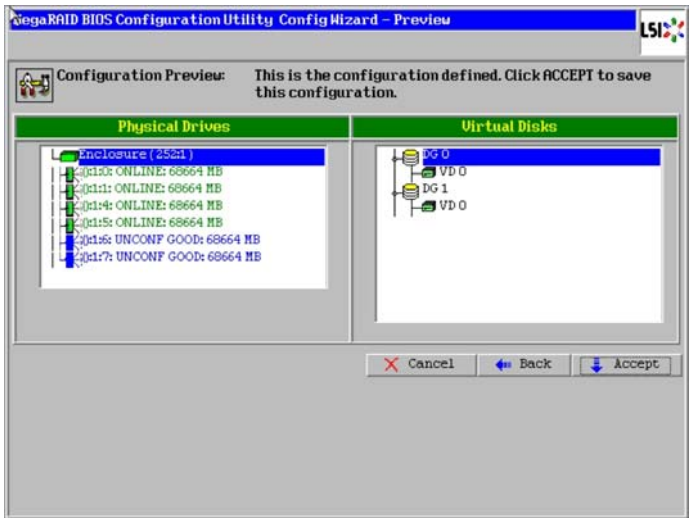
8. The VD Definition screen is displayed. Enter the necessary parameters, and select [Accept] at the bottom center of the screen, and press **Enter**.



9. Make sure that both DG0 and DG1 are defined as VD 0, then select [Next] at the lower right of the screen and press **Enter**.



10. On the "Preview" screen, make sure the VD is defined correctly, then select [Accept] at the lower right of the screen and press **Enter**.



11. The confirmation message "Save this Configuration?" appears. Select "Yes" and press **Enter** to save the configuration.

12. The confirmation message "All data on the new Virtual Disks will be lost. Want to Initialize?" appears. Normally, select "Yes" and press **Enter**.

13. "Virtual Disks" operation screen is displayed. If no other operation is required, select [Home] at the lower left of the screen and press **Enter**.

14. The WebBIOS Home Menu is displayed. Virtual Disk you have created is displayed in the lower right frame of the screen.

Prameters for VD Definition

Listed below are parameters for Configuration Wizard.

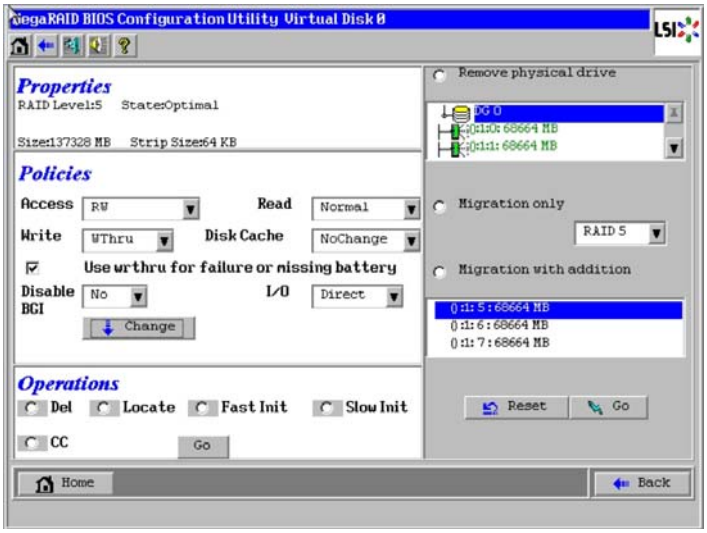
Item	Parameter	Remarks
RAID Level	**RAID0** / **RAID1** / **RAID5** / **RAID6** / RAID 00 / **RAID 10** / **RAID 50** / RAID60	RAID 00, and RAID 60 are not supported.
Strip Size	8KB / 16KB / 32KB / **64KB** / 128KB / 256 KB / 512 KB / 1024 KB	Recommended value: 64KB
Access Policy	**RW** / Read Only / Blocked	Recommended value: RW
Read Policy	**Normal** / Ahead / Adaptive	Recommended value: Normal
Write Policy	**WBack** / **WThru**	WBack: WriteBack WThru: WriteThru
WrtThru for BAD BBU	**Checked** / Unchecked	Select a mode when WriteBack is specified for Write Policy. Checked: Normal WriteBack Unchecked: Constant WriteBack Recommended value: Checked
IO Policy	**Direct** / Cached	Recommended value: Direct
Disk Cache Policy	NoChange / Enable / **Disable**	Recommended value: Disable
Disable BGI	**No** / Yes	Specify whether to perform Background Initialize after creation of VD. Recommended value: No
Select Size	Desired VD size (MB)	Specify the VD size appropriate to RAID level to be configured.

IMPORTANT:
BGI (Back Ground Initialize) is available only for RAID5 VD configured with five or more HDDs.

The Write Policy has the following modes depending on combination with WrtThru for BAD BBU. Select a mode suitable for your environment.

		WrtThru for BAD BBU	
		Checked	**Unchecked**
Write Policy	WBack	Normal write back mode (recommended) The controller uses cache memory for writing. However, if the battery is being charged or failed, the controller operates in WThru (write through) mode automatically. Thus, this mode can provide higher data security.	Constant write back mode The controller always uses cache memory for writing. In this mode, the data in cache memory may not be protected from being lost if the power failure occurs due to charge/discharge or defect of the battery. Be sure to use UPS when specifying this mode for write policy.
	WThru	Write through mode The controller does not use cache memory for writing data. This mode can provide higher data security, however, writing performance is lower than that in WBack mode.	* This mode is unavailable. If you do not check "WrtThru for BAD BBU" at creation of VD, this item is automatically checked after the VD has been created.

You can change parameters for VD definition except for RAID Level and Stripe Size. On the WebBIOS Home Menu, select [Virtual Disks], press **Enter**, and specify parameters in "Policies" frame, then select [Change] and press **Enter**.



Operation of Various Features

Check Consistency

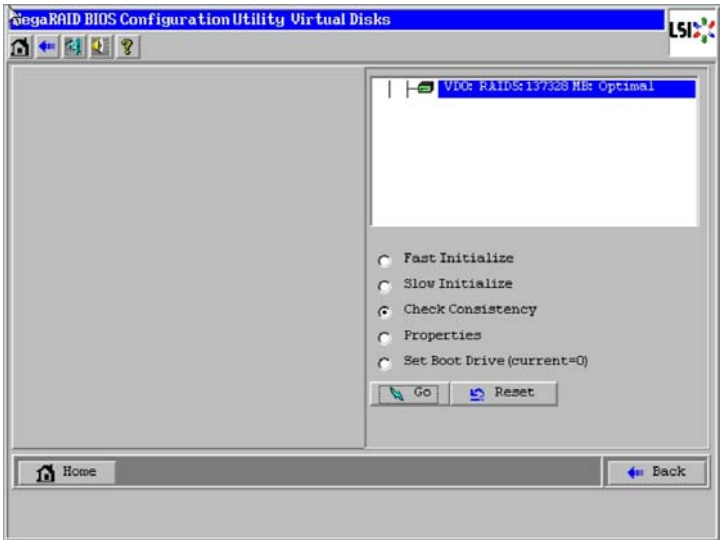
1. Start WebBIOS.

2. Select [Virtual Disks] on WebBIOS Home Menu and press **Enter**.

3. Select a VD to perform Check Consistency from the upper right frame of Virtual Disks screen.

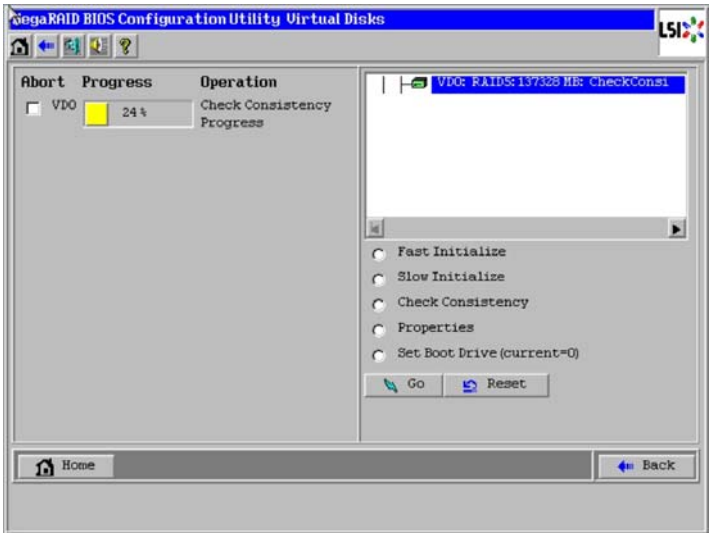
4. Click the checkmark column for Check Consistency from the lower right frame of Virtual Disks screen and press **Enter**.

5. Make sure that Check Consistency is checked, select [Go] and press **Enter**.



6. The progress of Check Consistency is displayed on the left frame of Virtual Disks screen.

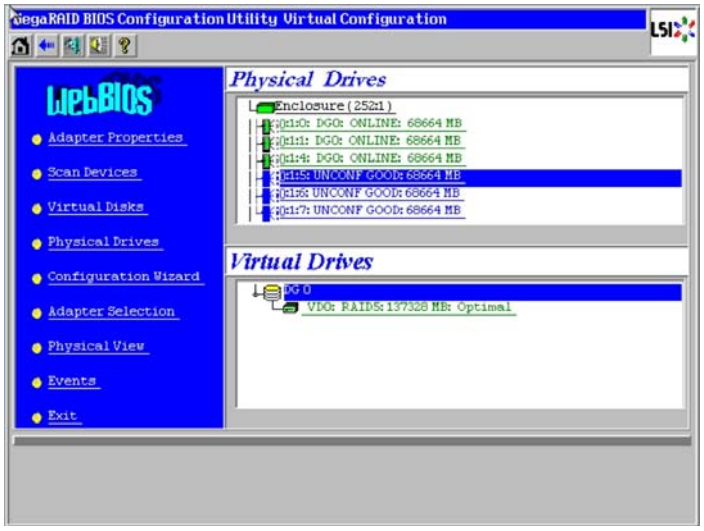
7. Select [Home] at the lower left of Virtual Disks screen and press **Enter** to return to the Top Menu.



Setting Hot Spare

Described below are procedures based on assumption:
Add a HDD to a RAID5 virtual disk configured with three HDDs and assign a newly added HDD as Hot Spare.

1. Start WebBIOS.
Make sure that the status for the added HDD is indicated as "UNCONF GOOD" in the Physical Drives frame of the WebBIOS Home.

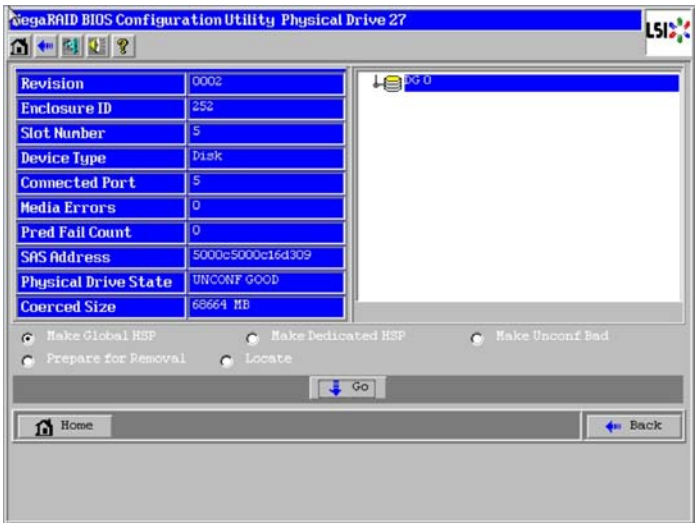


2. Select "( ):1:5" (newly connected HDD) in [Physical Drives] and press **Enter**.

3. The properties for Physical Drive is displayed.

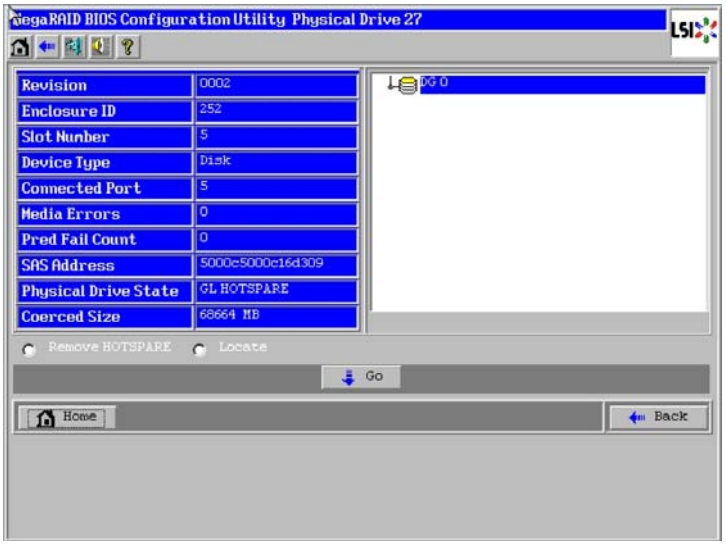
4. Select [Make Global HSP] or [Make Dedicated HSP] on the lower right of the screen, select [Go] on the lower center of the screen, and press **Enter**.

Global HSP: Indicates the Hot Spare available for all DGs.
Dedicated HSP: Indicates the Hot Spare available only for the specific DG. You need to specify the target DG.



5. The status for the newly connected HDD changes to "HOTSPARE".

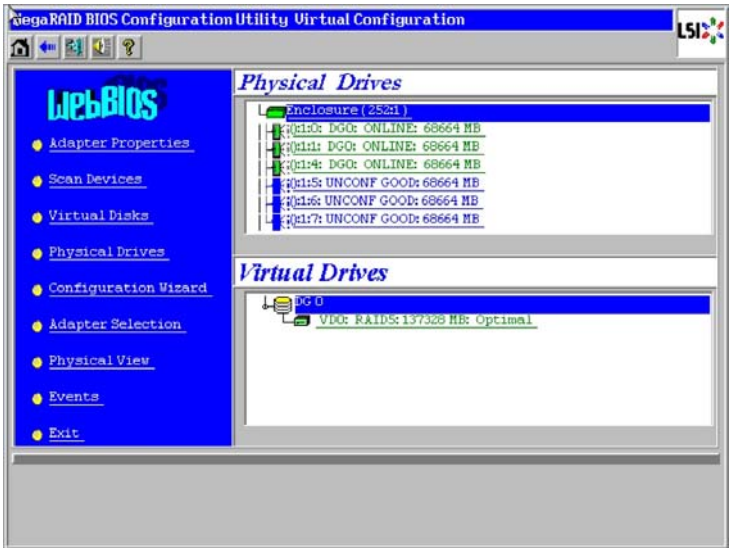
6. Select [Home] at the lower left of the screen and press **Enter** to go back to WebBIOS Home Menu.



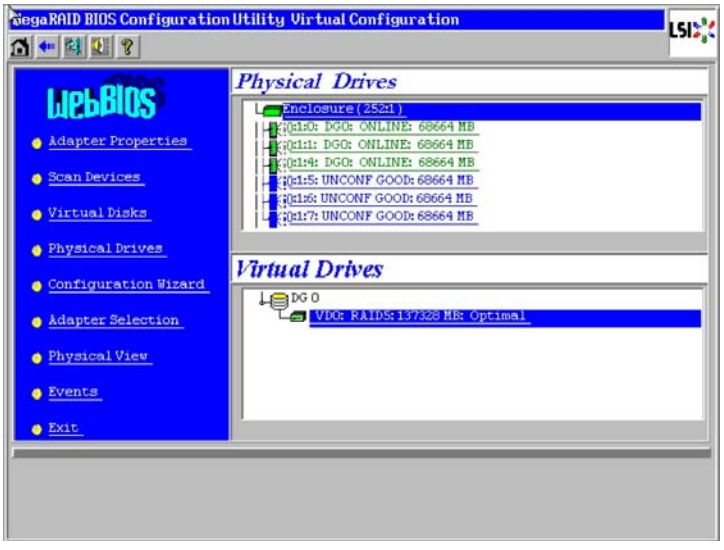
Reconstruction

Described below are procedures based on assumption:
Add a HDD to a RAID5 virtual disk configured with three HDDs to make a RAID5 virtual disk configured with four HDDs.

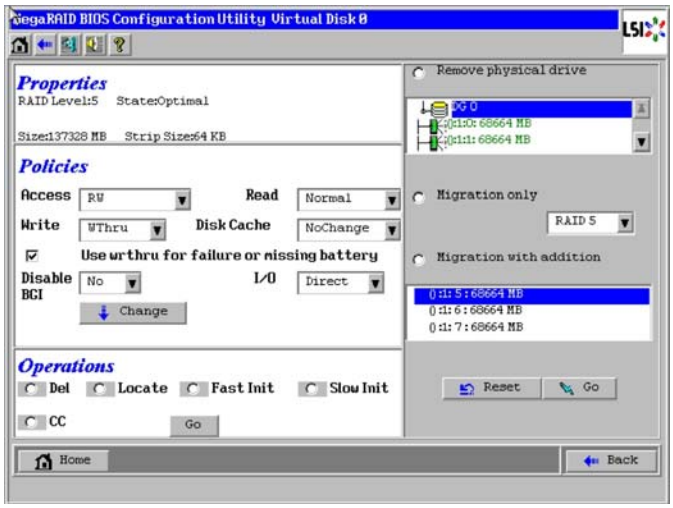
1. Start WebBIOS.
Make sure that the status for the added HDD is indicated as "UNCONF GOOD" in the Physical Drives frame of the WebBIOS Home.



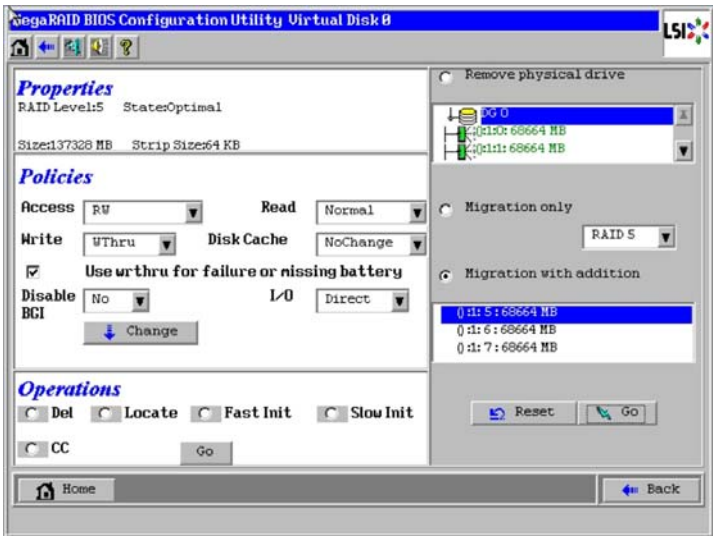
2. Select "VD 0" (already been configured) in [Virtual Drives] and press **Enter**.



3. Setting menu for VD 0 is displayed.



4. On the right side of the screen, items required for reconstruction are displayed.



Information of DGs and PDs in which a VD is defined.

Select RAID level used after reconstruction

Select "Migration with addition" and a PD to be added.

5. Select "Migration with addition".

6. Specify the RAID level used after reconstruction.

7. Select a HDD to be added.

8. When you finished steps 5 to 7, select [Go] at the lower right of the screen and press **Enter**.

9. The progress of reconstruction is displayed on the lower left of the screen. Select [Home] at the lower left of the screen and press **Enter** to return to the WebBIOS Home Menu.

IMPORTANT:

- **The capacity of virtual disk may be incorrectly displayed after reconstruction. In this case, perform Scan Devices from the Top Menu.**
- **Select [Home] and press Enter while the background task such as Consistency Check, Rebuild, or Reconstruction is being executed. With the progress indication being displayed, the background task may be processed at slow rate.**

WebBIOS and Universal RAID Utility

You can use Universal RAID Utility for configuration and management, monitoring of RAID System after start up operating system.
The point to be kept in mind when using Universal RAID Utility together with WebBIOS is as follows.

Terms

Terms used in WebBIOS and Universal RAID Utility are not identical.
When you use Universal RAID Utility together with WebBIOS, substitute terms according to the following list.

Term used inWebBIOS	Term used in Universal RAID Utility
Adapter	RAID Controller
Virtual Disk	Logical Drive
Disk Group	Disk Array
Physical Drive	Physical Device

Number and ID

The number to manage each component of RAID System of Universal RAID Utility is different from those of WebBIOS.

Adapter and RAID Controller

WebBIOS manages Adapter by a number beginning with 0. You can see a number of Adapter where [Adapter No] in [Adapter Selection] menu.
Universal RAID Utility manages RAID Controller by a number beginning with 1. You can see a number of RAID Controller where [Number] in the property of RAID Controller on RAID Viewer or [RAID Controller #X] in the property of RAID Controller on raidcmd.
Also, you can see the number of Adapter managed by WebBIOS where [ID] in the property of RAID Controller by Universal RAID Utility.

Virtual Disk and Logical Dvice

WebBIOS manages Virtual Disk by a number beginning with 0. You can see a number of Virtual Disk where [VD X] in Virtual Drives.
Universal RAID Utility manages Logical Drive by a number beginning with 1. You can see a number of Logical Drive where [Number] in the property of Logical Drive on RAID Viewer or [RAID Controller #X Logical Drive #Y] in the property of Logical Drive on raidcmd.
Also, you can see the number of Logical Drive managed by WebBIOS where [ID] in the property of Logical Drive by Universal RAID Utility.

Disk Array

WebBIOS manages Disk Array by a number beginning with 0. You can see a number of Disk Array where [DG X] in Physical Drives and Virtual Drives.
Universal RAID Utility manages Disk Array by a number beginning with 1. You can see a number of Disk Array where [Disk Array] in the property of Logical Drive on RAID Viewer or [RAID Controller #X Disk Array #Y] in the property of Disk Array on raidcmd.

Physical Drive and Physical Device

WebBIOS manages Physical Drive by three numbers (Connector number:Enclosure number:Slot number). You can view these numbers shown by [x:x:x] in Physical Drives box. Note, however, the Connector number is always shown as "()" because it is not supported with this server. The Slot number is the number on the drive tray of the server.

WebBIOS manages Physical Drive by three numbers (Connector number:Enclosure number:Slot number). You can view these numbers shown by [x:x:x] in Physical Drives box. Note, however, the Connector number is always shown as "()" because it is not supported with this server. The Enclosure Number of Boot Cell is always "1". The Slot number is the number on the drive tray of the server.
Universal RAID Utility manages Physical Device by number beginning with 1 and ID, Enclosure number, Slot number. The numbers of physical devices connected to the controller are sorted in ascending order based on ID and assigned with a number beginning with 1 starting from the smallest number. The ID is same value of Connected Port shown in Physical Drives Properties box in WebBIOS.
See the table below for correspondence between the slot numbers assigned to drive trays on the server and indications on Physical Drive (WebBIOS) and Physical Device (Universal RAID Utility).

Slot numbers and their indications on utility software

Hard disk drive		
Slot number of server	**Indication on Web BIOS**	**Indication on URU**
Slot#0	( ):1:0	Slot 1
Slot#1	( ):1:1	Slot 2
Slot#2	( ):1:2	Slot 3
Slot#3	( ):1:4	Slot 5
Slot#4	( ):1:5	Slot 6
Slot#5	( ):1:6	Slot 7
Slot#6	( ):1:8	Slot 9
Slot#7	( ):1:9	Slot 10
Slot#8	( ):1:10	Slot 11
Slot#9	( ):1:12	Slot 13
Slot#10	( ):1:13	Slot 14
Slot#11	( ):1:14	Slot 15

Setting of Priority

WebBIOS displays and sets Rebuild Priority and Patrol Read Priority, Consistency Check Priority of RAID Controller by percentage. But, Universal RAID Utility uses three levels as High/Middle/Low for them.

Setting value of WebBIOS and the display level of Universal RAID Utility

Item	Setting level of WebBIOS	Setting level of URU
Rebuild Priority Rebuild Rate (WebBIOS)	80～100	High
	31-79	Middle
	0-30	Low
Patrol Read Priority Patrol Read Rate (WebBIOS)	80～100	High
	31-79	Middle
	0-30	Low
Consistency Check Priority CC Rate (WebBIOS)	80～100	High
	31-79	Middle
	0-30	Low

Setting level of Universal RAID Utility and the setting value

Item	Setting level of URU	Setting value
Rebuild Priority Rebuild Rate (WebBIOS)	High	90
	Middle	50
	Low	10
Patrol Read Priority Patrol Read Rate (WebBIOS)	High	90
	Middle	50
	Low	10
Consistency Check Priority CC Rate (WebBIOS)	High	90
	Middle	50
	Low	10

NOTE:

- **WebBIOS can set BGI Rate (Background Initialize Priority). But Universal RAID Utility cannot set it.**
- **Universal RAID Utility can set Initialization Priority. But, RAID controller(MegaRAID) does not have the function of the setting of Initialization Priority. Therefore, Universal RAID Utility does not display [Initialization Priority] in the property of RAID Controller. Also, it will fail that you change the Initialization Priority by raidcmd.**

Battery for RAID Controller (MegaRAID)

This section describes the features operations of battery for RAID Controller (MegaRAID).

Features

The RAID Controller (MegaRAID) contains optional backup battery.
With the following features, the possibility of data loss due to an unexpected accident (e.g., an instantaneous power failure which may occur in Write Back mode) can be avoided.

- ●Backup of data in cache memory of RAID Controller
- ●Improvement of reliability in Write Back mode
- ●Adoption of reusable lithium-ion battery
- ●You can see the status of battery using WebBIOS or Universal RAID Utility.
  See "Adapter Properties" in this chapter about how to check the status of battery by WebBIOS.
  Refer to "Universal RAID Utility Ver2.1 or later User's Guide" for Windows or "Universal RAID Utility Ver2.3 User's Guide" for Linux included in NEC EXPRESSBUILDER about how to check the status of battery by Universal RAID Utility.

IMPORTANT:
If you view the cache mode of logical drive that was created or configured using [Auto Switch] while the battery is being charged or discharged, the battery status is displayed as [WriteThrough].

Remote Management Function

This server supports to monitor internal hardware such as temperature, power voltage, cooling fan, power, etc. and the function to create system event log (SEL) and reporting function of hardware failure by using the system management LSI mounted as a standard inside the server. It is possible to manage the server from a remote location with Web browser via system management LSI by connecting management LAN to network. Using the remote device function enables to operate keyboard, video and mouse (KVM) of the server from a remote location and to access to CD, DVD-ROM/ISO image/Floppy Drive of the remote location from the server.

NOTE:
Errors of 10 and a few percent may be observed in measurement values of temperature/power voltage/fan/power depending on the operating environment.

Web Console Function

With Web Console Function, remote operation and status check of management target server are possible even when OS is not in operation (including when the power is off, booting BIOS and OS stalling, etc.)

Web Console Function is divided into three types of Web Console. Status display and operation item vary depending on each Web Console. Use those according to the intended purpose.

- **System Web Console:**

  This console mainly performs the setting of System. Refer for details on connection procedure and each function.

- **Server Web Console:**

  This is the most used Web Console and various status confirmation and operation related to the server.
  Refer for details on connection procedure and each function.

- **Resource Web Console:**

  This console performs various status confirmation and operation related to stand-alone BOX. Refer to " **Resource Web Console**" for details on connection procedure and each function.

IMPORTANT:

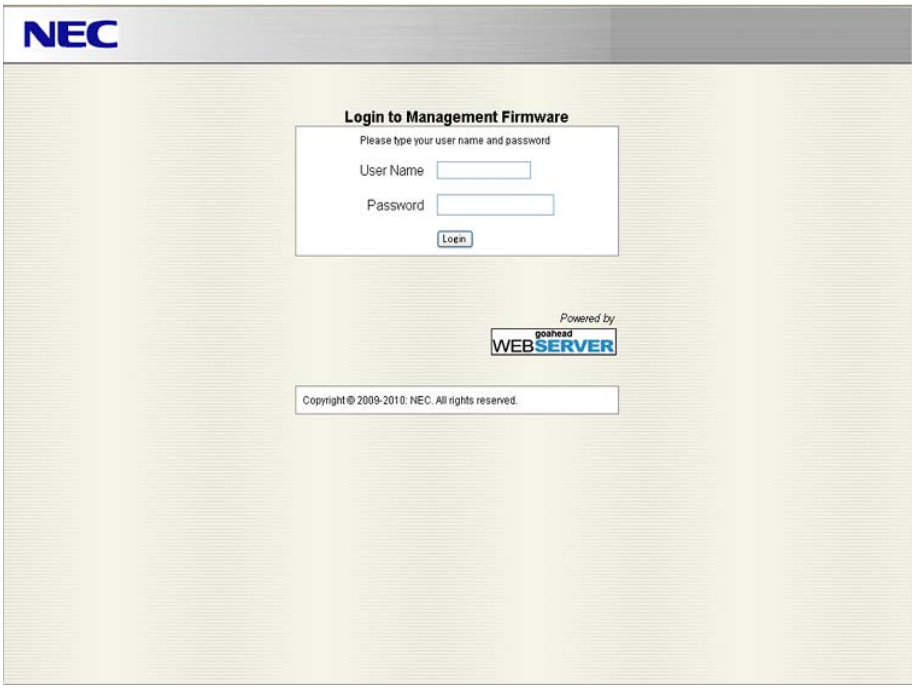
- **To connect to each Web Console, it is required to set the system, server and network of resources from EXPRESSSCOPE® Monitor. Refer to "Network Setting" for setting procedure.**
- **Use IE7.0 or later version for the browser for connecting each Web Console.**
- **When remote console is not used for 30 minutes after connecting to each Web Console, Web Console is automatically disconnected (timeout occurs). It is required to logon to Web Console again to continue using each Web Console function.**
- **Firmware update is possible from a System Web Console. Firmware and BIOS update is possible from a Server Web Console.**

Encryption communication is performed between the management PC and each Web Console. Warning regarding security certificate may appear when connecting to Web Console as a result. Select **"Continue"** to move to logon screen of each Web Console.

* Warning message varies depending on IE version.

NOTE:
To avoid the warning from being displayed, connect to each Web Console on the management PC and install the certificate.

The following **login** screen is displayed when connecting to each Web Console.



Login to each Web Console is possible by entering “User Name” and “Password.”

Default “User Name” and “Password” are as follows.

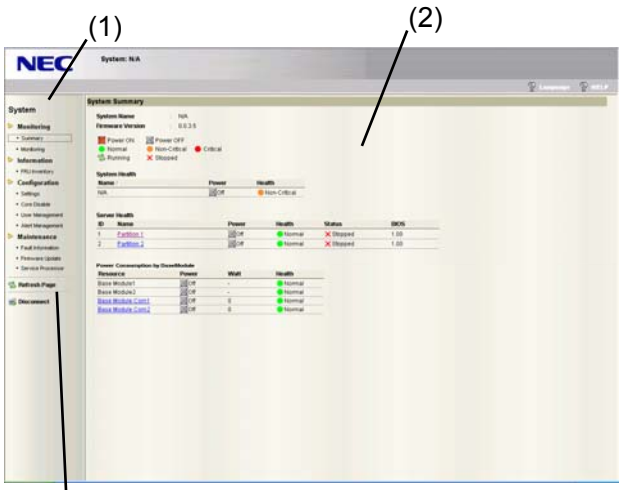
User Name : Administrator
Password : Administrator

Regarding add/change of “User Name” and “Password,” refer to **“1.6 User Management”** for System Web Console and Resource Web Console, and **“2.6 User Management”** for Server Web Console.

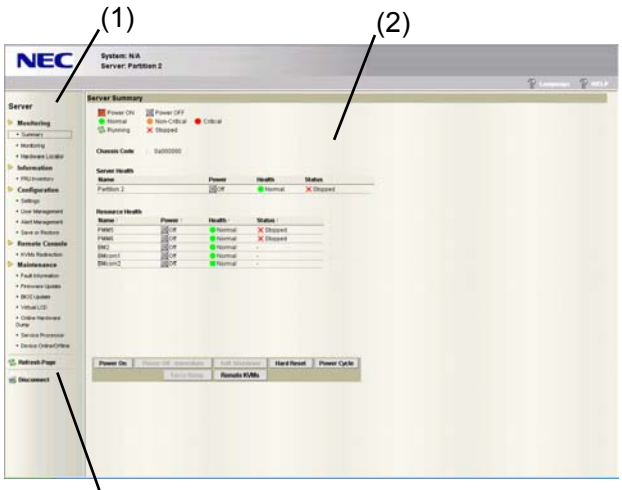


IMPORTANT:
If above message is appeared, try login again more than 40 minutes later

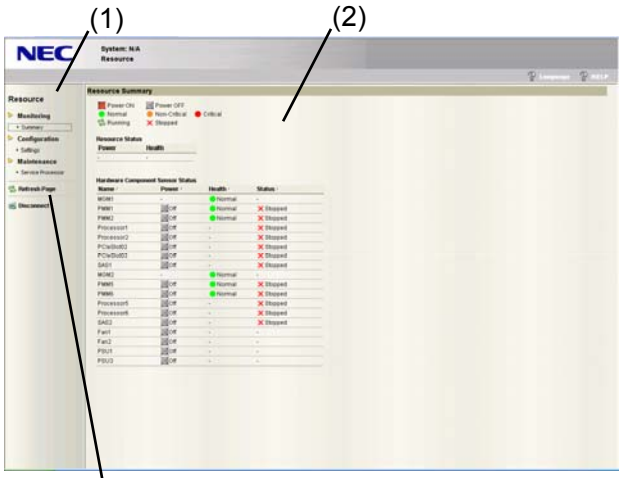
When logging in to each Web Console, the following **Web Console** screen is displayed.



System WEB Console



Server WEB Console



Resource WEB Console

Basic screen display for each Web Console is as follows.

The menu for each Web Console is in (1) on the left of the screen. Select this menu item to display each menu contents in (2).

The currently logged in Web Console type (system, server, resource) is displayed at the top of the menu in (1).

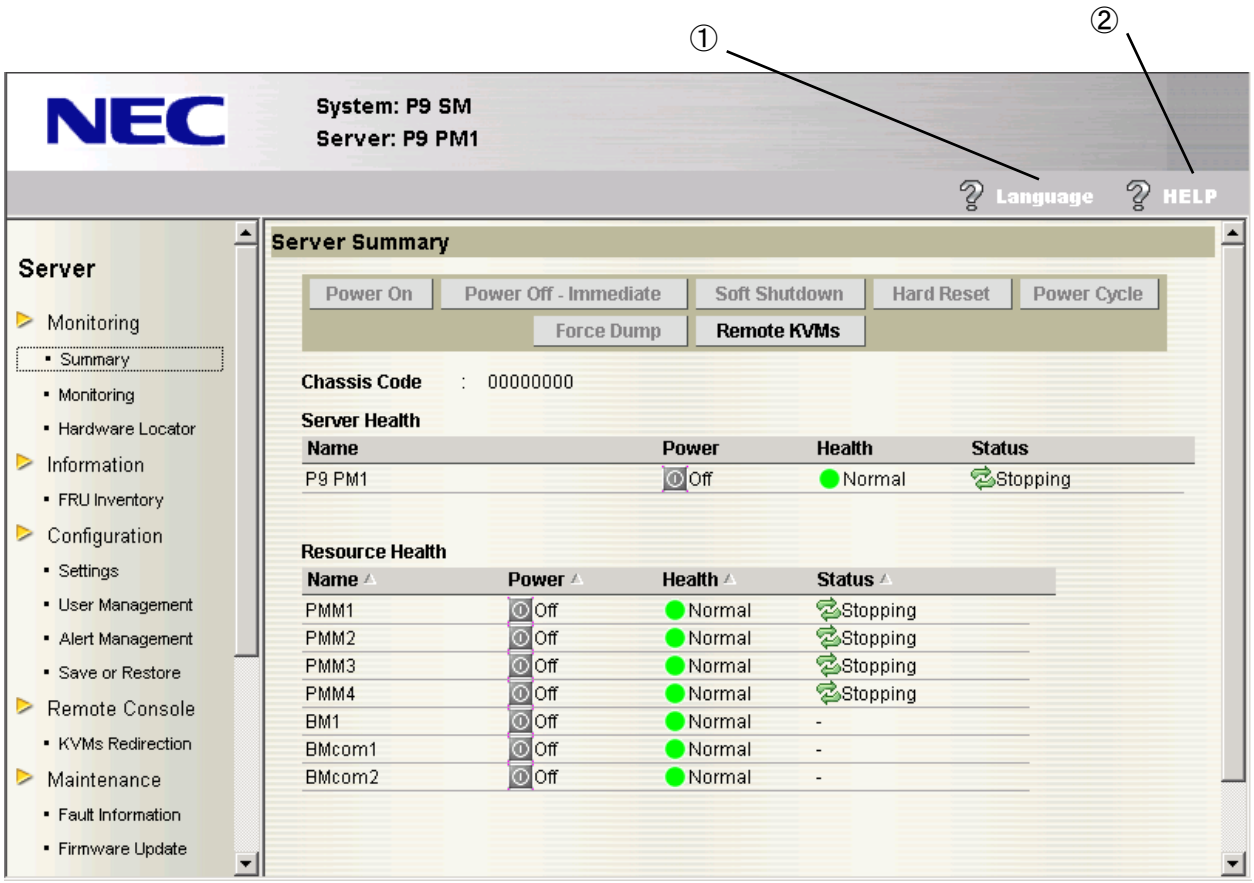
When selecting **"Refresh Page"** at the bottom of the menu (3), the status of the server is collected again and the latest information is displayed.

Select **"Disconnect"** to logout from each Web Console.

Note : Selecting Language and help

(1) To select the language on the Web console, click the “?Language” on the top frame. English and Japanese are supported.

(2) To refer the help menu, click the “?HELP” on the top frame during each screen on the Web console is opened.

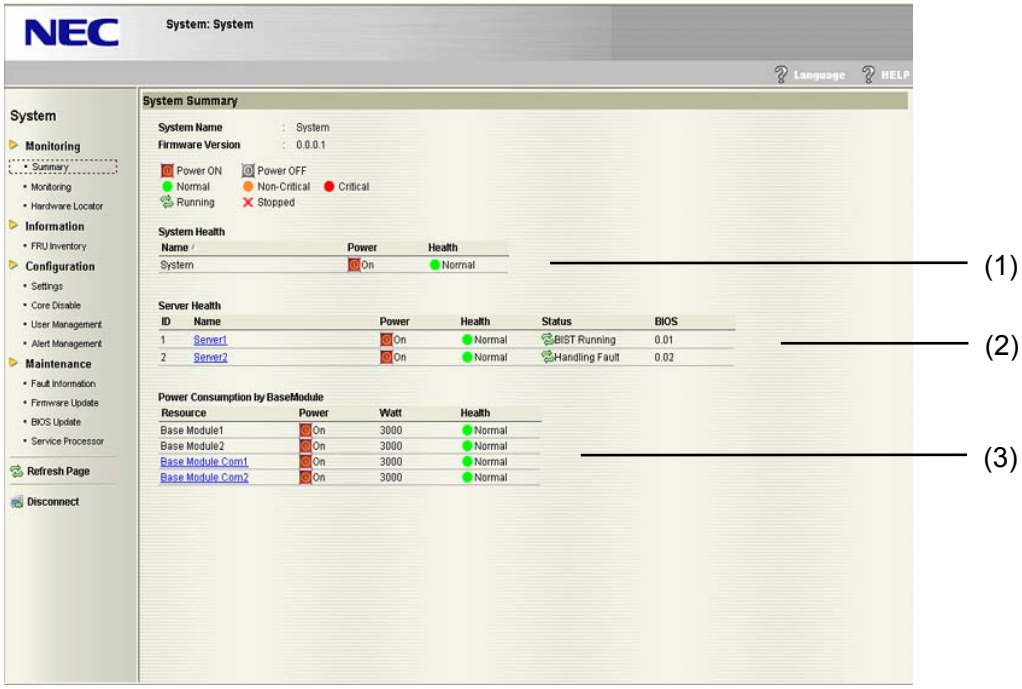


System Web Console

To connect to System Web Console, enter IP address set in the address field by going to **"System -> SYS Network"** from EXPRESSSCOPE® Monitor after starting the browser. The set IP address can be checked by going to **"System -> SYS Network -> View Information".**

1.1 Summary

Summary is displayed by selecting **"Summary"** from the menu on the left side of the screen. The status of system, server and resource can be checked from Summary. Display information is automatically updated in **Summary**.



(1) displays system status, (2) displays server status, and (3) displays resource status.

The following is the description on each item displayed in Summary.
- System Name : Display system name. "N/A" is displayed when it is not set.
- Firmware Version : Display version for Management Firmware.

(1) System Health
Display system status.
Name : System name
Power : Power status

Display (value)	Description
Off	DC power of all Servers is OFF.
On	DC power of at least 1 Server is ON.

Health : Overall system status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only
Non-Critical	Recoverable Error occurrence Maintenance required inside the server
Critical	Fatal Error occurrence Maintenance required inside the server

(2) Server Health

Display server status.

ID : Server ID

Name : Server name (link to server Web page)

Power : Power status of server

Display (value)	Description
Off	DC power of all Servers is OFF.
On	DC power of at least 1 Server is ON.

Health : Overall server status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only
Non-Critical	Recoverable Error occurrence Maintenance required inside the server
Critical	Fatal Error occurrence Maintenance required inside the server.

Status : Server operation status

Display (value)	Description
Stopped	Stopped status
BIST Running	BIST Running status
Initializing	Boot-up (mounting) in progress status
EFI Manager Booted	EFI Manager Booted status
OS or T&D Starting	OS or T&D Starting status
T&D Running	T&D Running status
OS Running	OS Running status
Stopping	Shutdown (mounting) in progress status
Handling Fault	Handling Fault status
Handling DP	Handling DP status

BIOS : BIOS version

(3) Power Consumption by BaseModule

Display base module status and power consumption.

Resource : Base module name (link to resource Web page)

Power : Power status

Display (value)	Description
Off	DC power of all Servers is OFF
On	DC power of at least 1 Server is ON

Watt : Power consumption

Health : Overall base module status

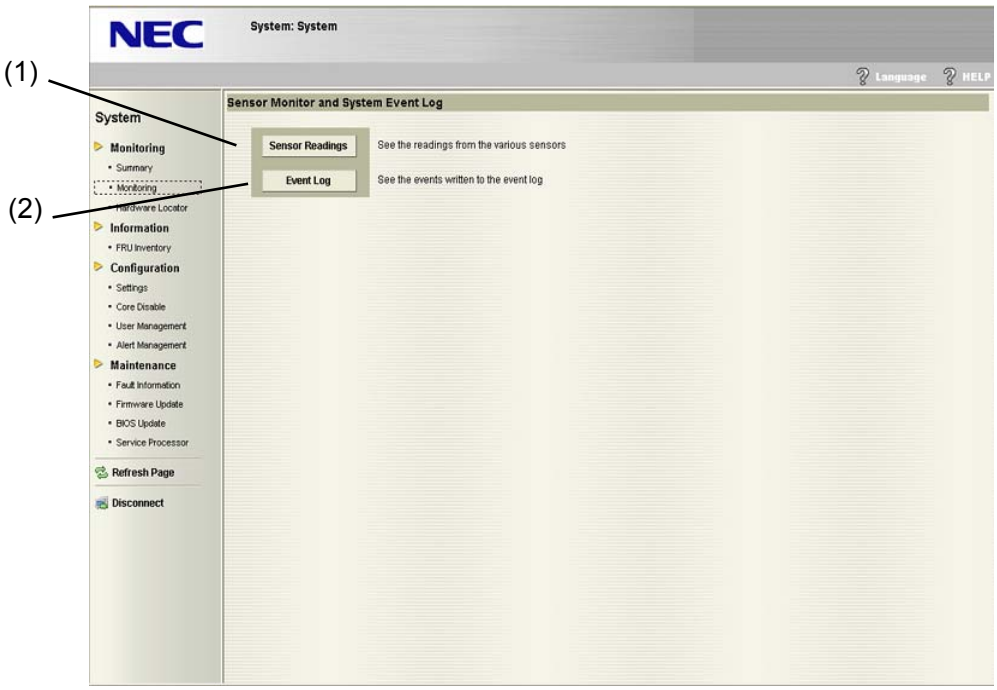
Display (value)	Description
Normal	No failure occurrence, or Correctable Error only
Non-Critical	Recoverable Error occurrence Maintenance required inside the server
Critical	Fatal Error occurrence Maintenance required inside the server

1.2 Monitoring

Monitoring is displayed by selecting **"Monitoring"** from the menu on the left side of the screen. The following item status of the system can be checked in **Monitoring**.

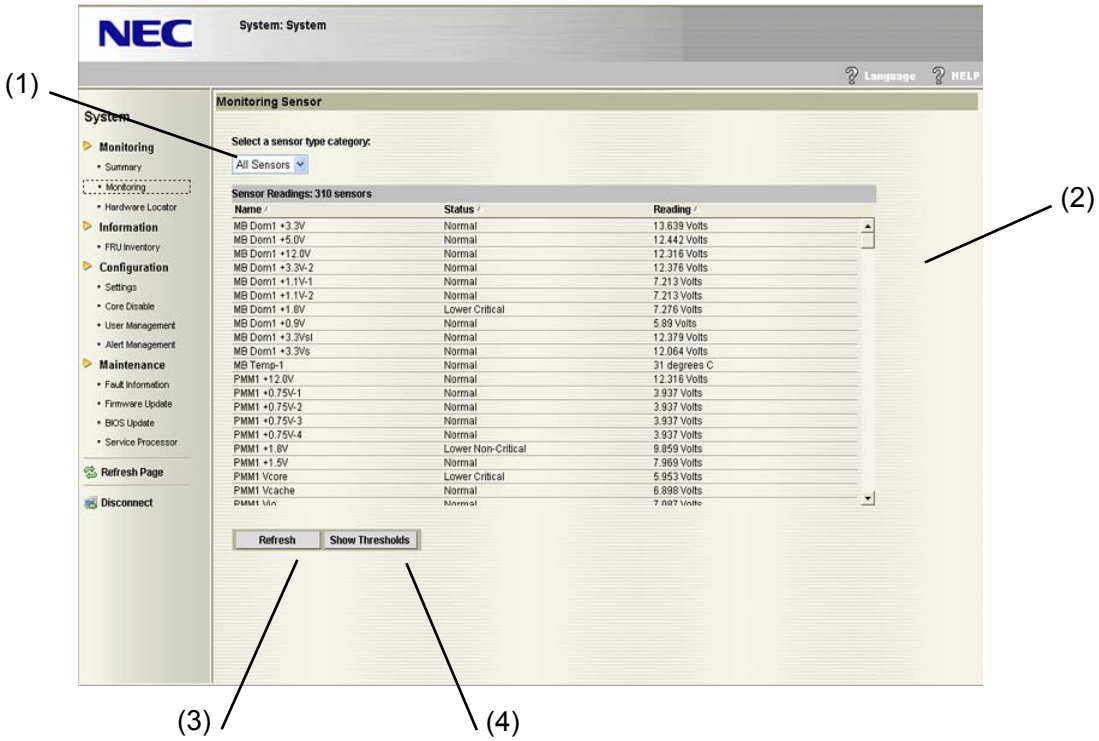
(1) Sensor Readings

(2) Event Log



1.2.1 Sensor Readings

Sensor Readings is displayed when selecting **"Monitoring"** from the menu on the left side of the screen and clicking **"Sensor Reading."**
The status of each hardware is monitored in this server. The current status of each hardware can be checked with Sensor Readings. Display contents can be narrowed down by selecting the display target from **"Select a sensor type category."**
This function is used by maintenance personnel for analysis in case of failure occurrence.

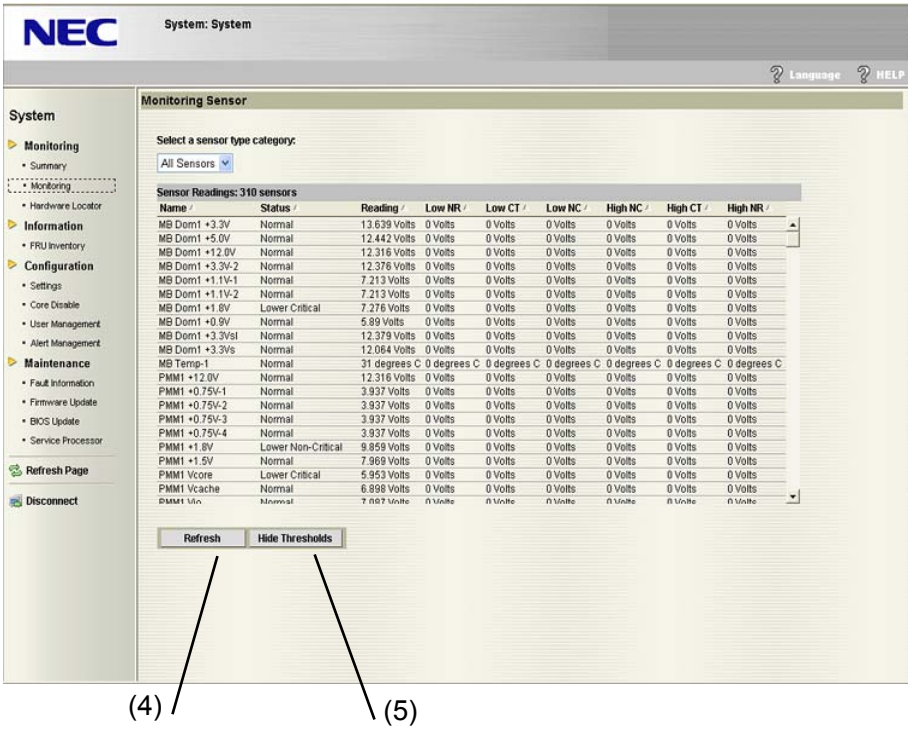


(1) Select sensor type category to be displayed from Sensor Type Category.

(2) Sensor status is displayed.
Name : Sensor name
Status : Status
Reading : Sensor value

(3) Click **"Refresh"** to display sensor status again.

(4) Click **"Show Thresholds"** to display the threshold value.



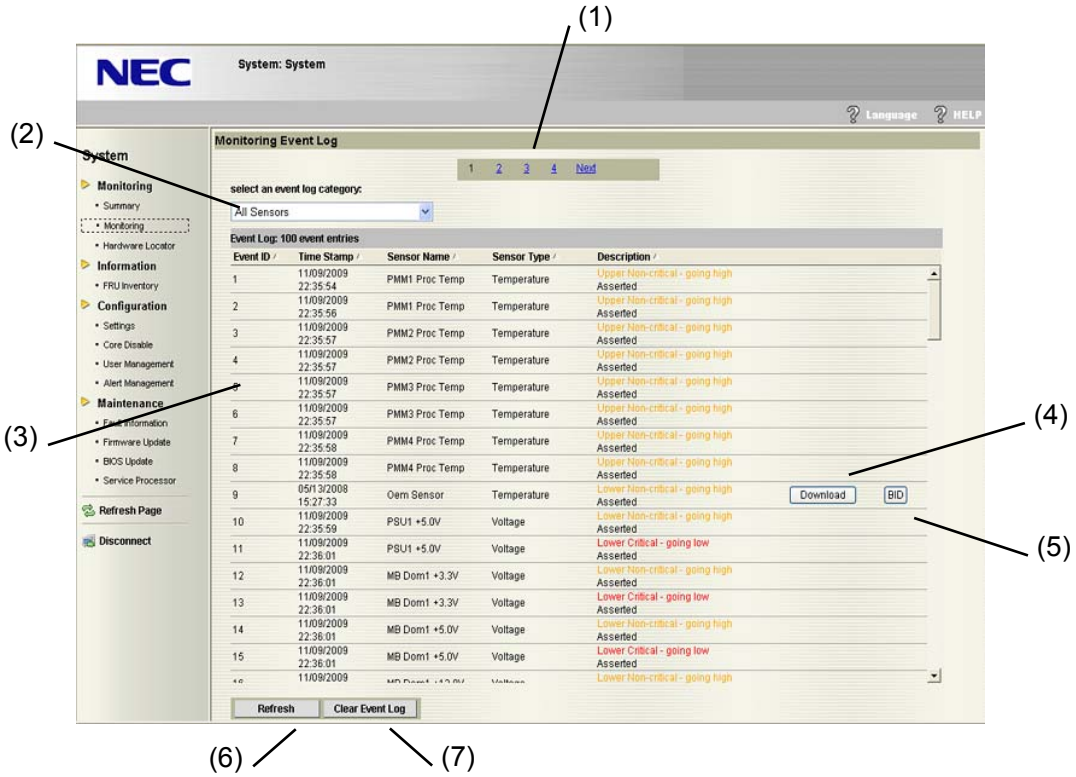
Low NR : Low non-recoverable threshold value
Low CT : Low critical threshold value
Low NC : Low non-critical threshold value
High NC : High non-critical threshold value
High CT : High critical threshold value
High NR : High non-recoverable threshold value

(4) Click **"Refresh"** to display sensor status again.

(5) Click **"Hide Thresholds"** to hide threshold value for each sensor.

1.2.2 Event Log

Event Log is displayed by selecting **"Monitoring"** from the menu on the left side of the screen and clicking **"Event Log."** When various events occur, the occurrence date, hardware type and contents are recorded in Event log. Event Log displays the information of the occurred events.
For the collected event with more detailed information, the information can be acquired as a file by clicking **"Download."** By clicking **"BID,"** analysis result of BID can also be displayed.
Click **"Clear Event Log"** to delete event contents.
This function is used by maintenance personnel for analysis in case of failure occurrence.



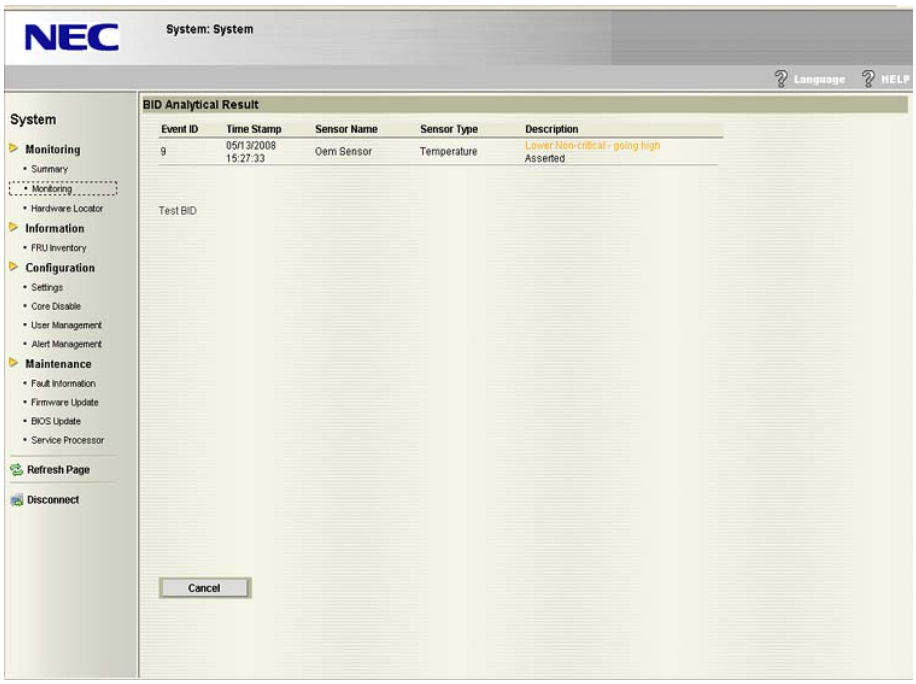
(1) Event log is displayed for 100 items per page. Switch pages of event logs to be displayed by selecting the link with number.

(2) Select sensor type to be displayed from **"select an event log category."**

(3) Event log information is displayed.
- Event ID : Event ID
- Time Stamp : Time stamp
- Sensor Name : Sensor name
- Sensor Type : Sensor type
- Description : Event contents
- Download : Download button (display only when hardware log exists).
- BID : BID button (display only when hardware log exists).

(4) Click **"Download"** to download hardware log to management PC.

(5) Click **"BID"** to display BID analysis result.



(6) Click **"Refresh"** to display event log again.

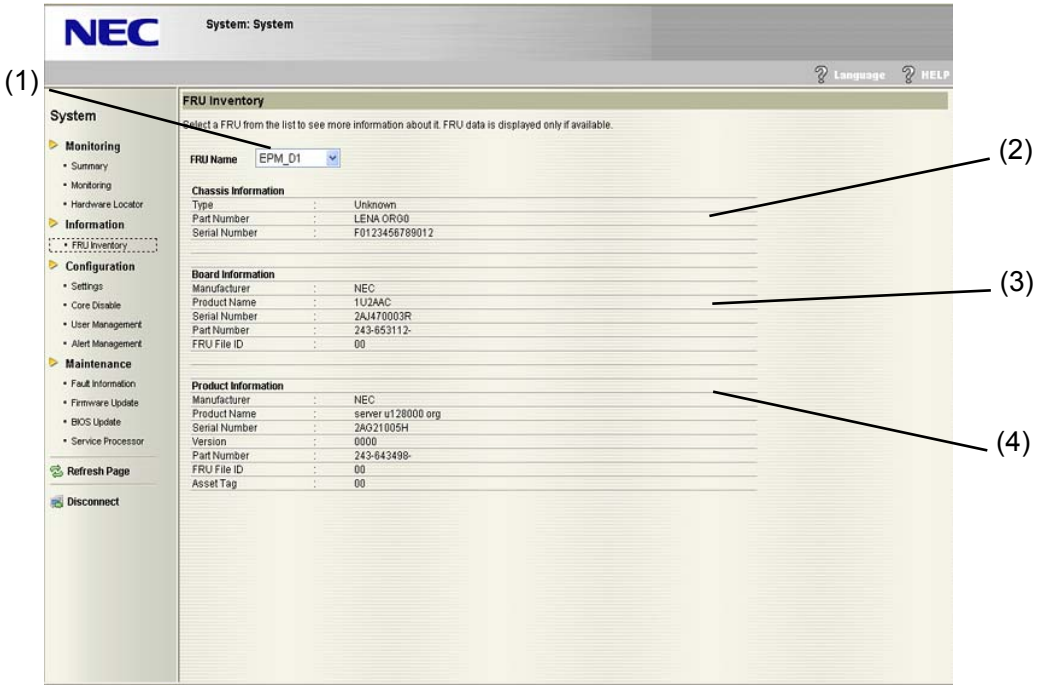
(7) Click **"Clear Event Log"** to delete all the event logs.

NOTE:
BID, Built In Diagnostics , has the function to analyze the failure Occurred in the system.

IMPORTANT:
The Event Logs displayed by BID are for only two last failures.The Event Logs older than that can not be seen.

1.3 FRU Inventory

FRU Inventory is displayed by selecting **"FRU Inventory"** from the menu on the left side of the screen.
By selecting **"FRU Name,"** various information regarding the selected device is displayed in **FRU Inventory.**



(1) Select device from **"FRU Name."**

(2) Chassis Information
Chassis information is displayed.
Type : Type
Part Number : Part number
Serial Number : Serial number

(3) Board Information
Board information is displayed.
Manufacturer : Manufacturer name
Product Name : Product name
Serial Number : Serial number
Part Number : Part number
FRU File ID : FRU file ID

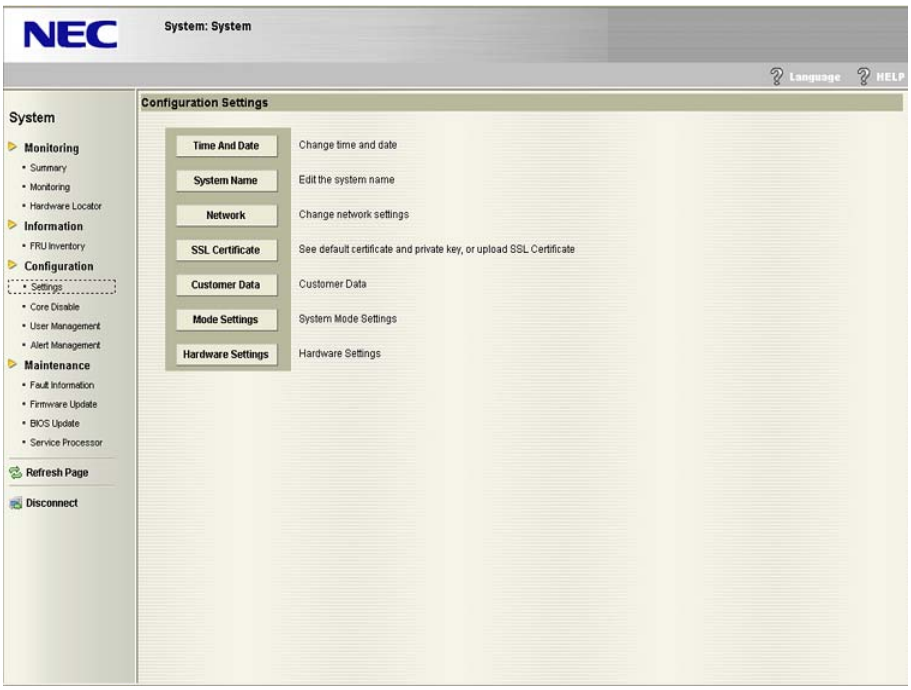
(4) Product Information
Product information is displayed.
Manufacturer : Manufacturer name

Product Name : Product name
Serial Number : Serial number
Version : Version
Part Number : Part number
FRU File ID : FRU file ID
Asset Tag : Asset management tag

1.4 Settings

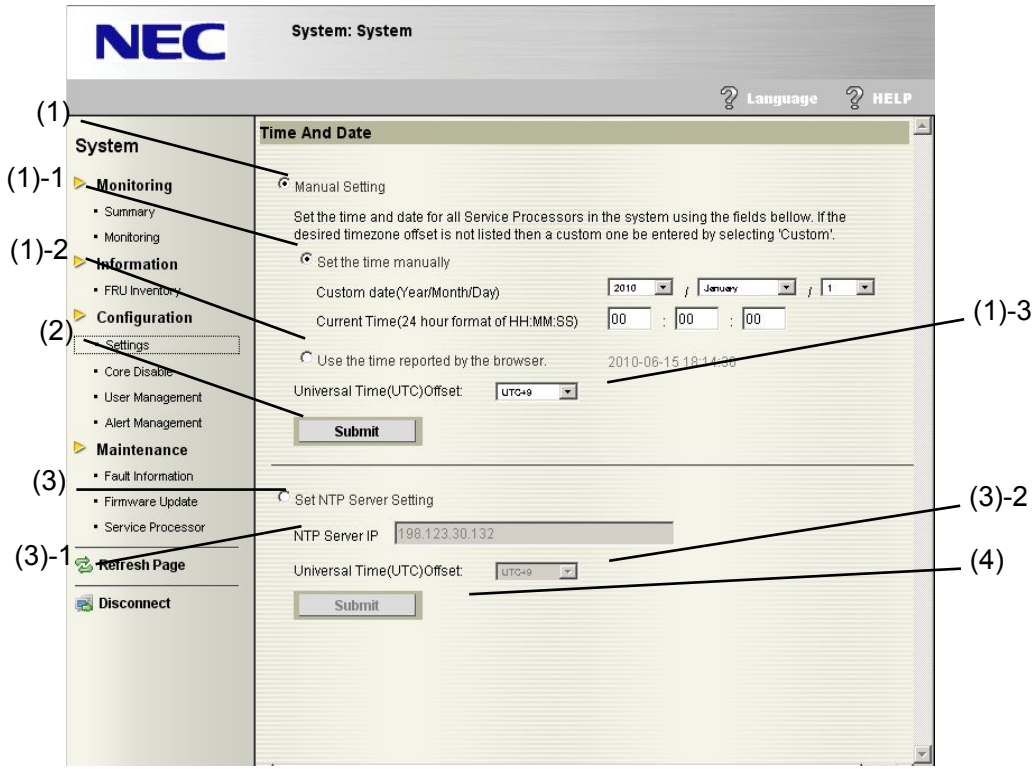
Settings is displayed by selecting **"Settings"** from the menu on the left side of the screen. Setting regarding the following items of the system can be set in **Settings**.

- Time And Date
- System Name
- Network
- SSL Certificate
- Customer Data
- Mode Settings
- Hardware Settings



1.4.1 Time And Date

Time And Date is displayed by selecting **"Settings"** and clicking **"Time And Date"** of the menu on the left side of the screen. Time and date of Service Processor is set in **Time And Date**. Manual setting, setting adjusted to the time and date of management PC, and NTP server setting can be performed.



(1) Selecting **"Manual Setting"** enables to set time and date manually or from the time(local time) of management PC.

(1)-1 Selecting **"Set the time manually"** enables to set time and date manually.
Select selectable date for each of year, month, and date.
Enter settable time for hour, minute, and second from the keyboard.

(1)-2 Selecting **"Use the time reported by the browser"** enables to set the time obtained from management PC.

(1)-3 Set UTC offset value (from -24 to +24, and operator designated value (-24:00 to +24:00, and custom setting)) in **"Universal Time(UTC)Offset."**
If "Custom" in the list of the select box is selected, the input box for the custom setting will appear on this page. Then, an operator can designate the values from -24:00 to +24:00.
e.g.:



(2) Clicking **"Submit"** enables to set the time and date with the information of (1).

(3) Selecting **"Set NTP Server Setting"** enables to set time and date using NTP server.

(3)-1 Set IP address of NTP server in **"NTP Server IP."**

(3)-2 Set UTC offset value(from -24 to +24、and operator designated value) in **"Universal Time(UTC)Offset".** This value is used to set the GMT time which is obtained from the designated NTP server as the local time of system. As for the custom setting, please refer to (1)-3.

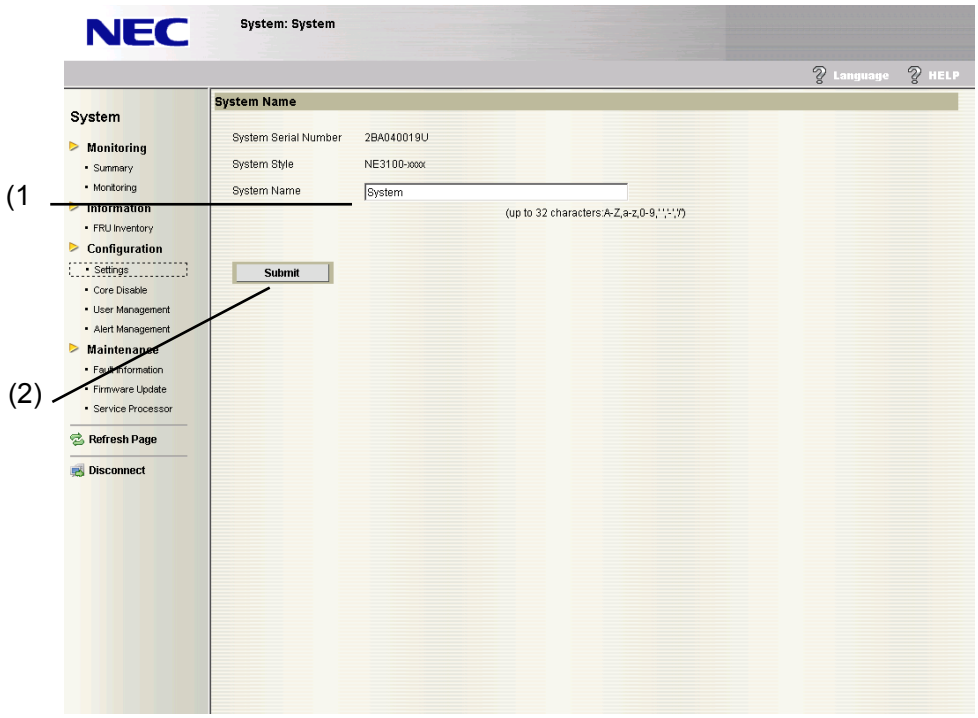
(4) Clicking **"Submit"** enables to set the information of (3).

IMPORTANT:

- **Because changing the current time significantly while the system power is on may affect to the Management Firmware, power off the system before doing the significant change. If this rule is not kept, malfunction such as disconnection of SOL session, power-up fail or maintenance mode abort may occur.**
- **(3)-1 If IP address is included in the NTP Server IP, the NTP setting is valid. If it is a blank, the NTP setting is invalid.**

1.4.2 System Name

System Name is displayed by selecting **"Settings"** and clicking **"System Name"** of the menu on the left side of the screen.
System name is set in **System Name**. Up to 32 alphanumeric values and some of the symbols can be used for the system name.
The set system name is displayed at the top of the screen.



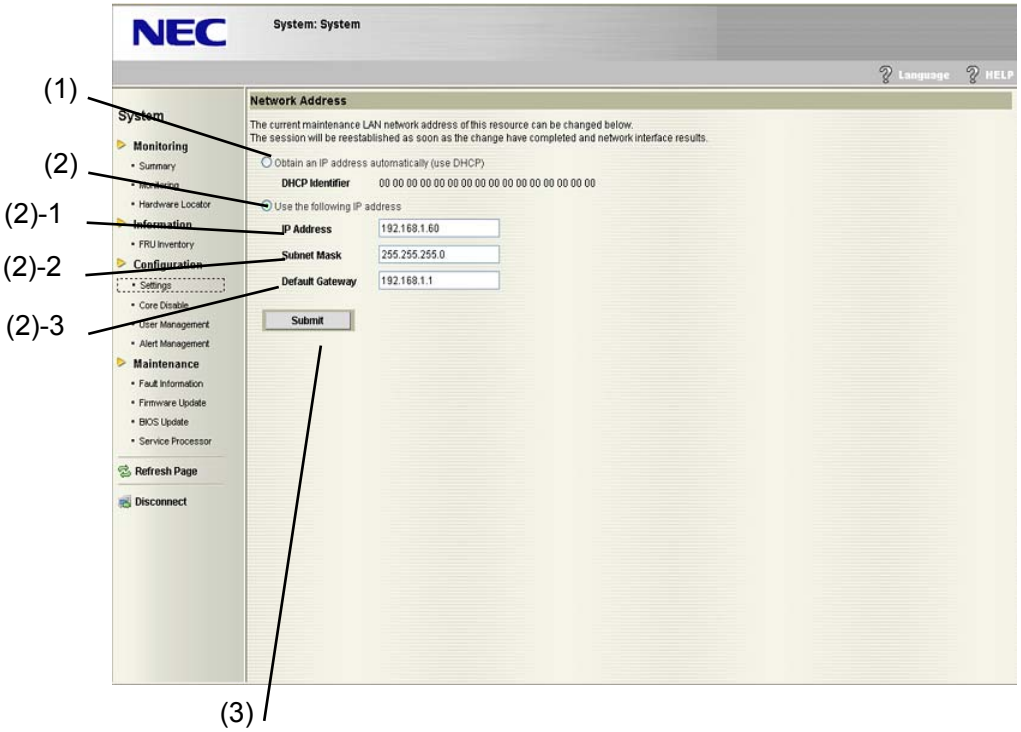
- System Serial Number: System specific information
- System Style : Server model number

(1) Set and display system name in **"System Name."**
Up to 32 characters of one-byte alphanumeric characters and blanks, "-" and "/" of ASCII character code can be entered for system name.

(2) Clicking **"Submit"** enables to set the information of (1).

1.4.3 Network

Network is displayed by selecting **"Settings"** and clicking **"Network"** of the menu on the left side of the screen.
Setting for network of Web Console can be set in **Network.**
It can be set manually or by DHCP server.



(1) Selecting **"Obtain an IP address automatically (use DHCP)"** enables to obtain IP address using DHCP server.

• DHCP Identifier : Display Device GUID.

(2) Selecting **"Use the following IP address"** enables to set the network information manually.

(2)-1 Set IP address in **"IP Address."**

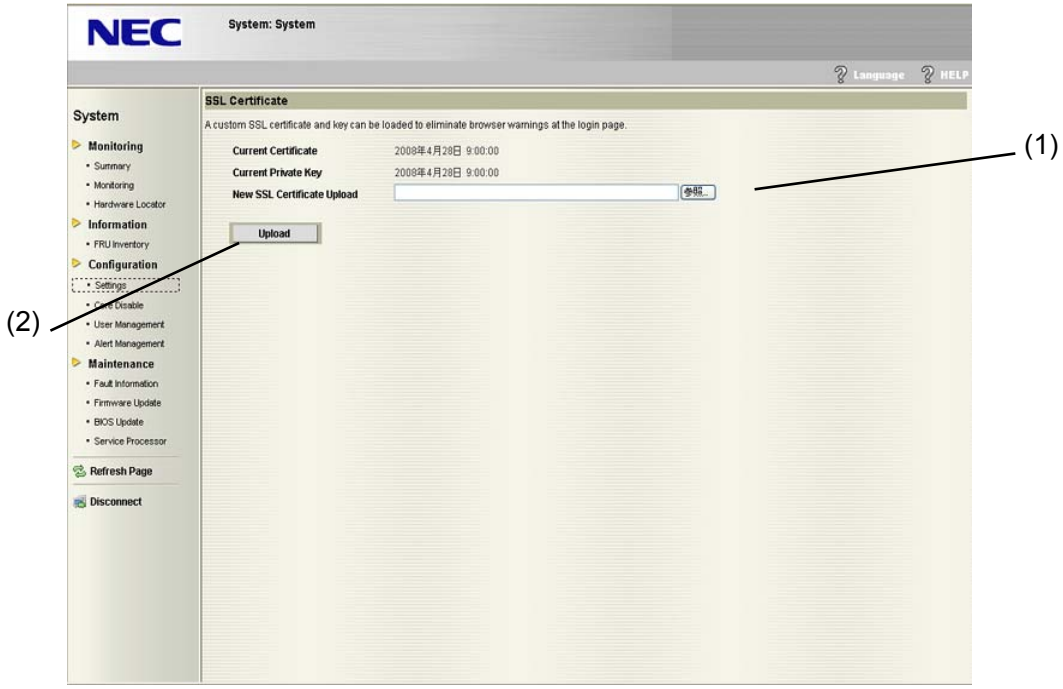
(2)-2 Set subnet mask in **"Subnet Mask."**

(2)-3 Set default gateway in **"Default Gateway."**

(3) Clicking **"Submit"** enables to set the information of (1) or (2).

1.4.4 SSL Certificate

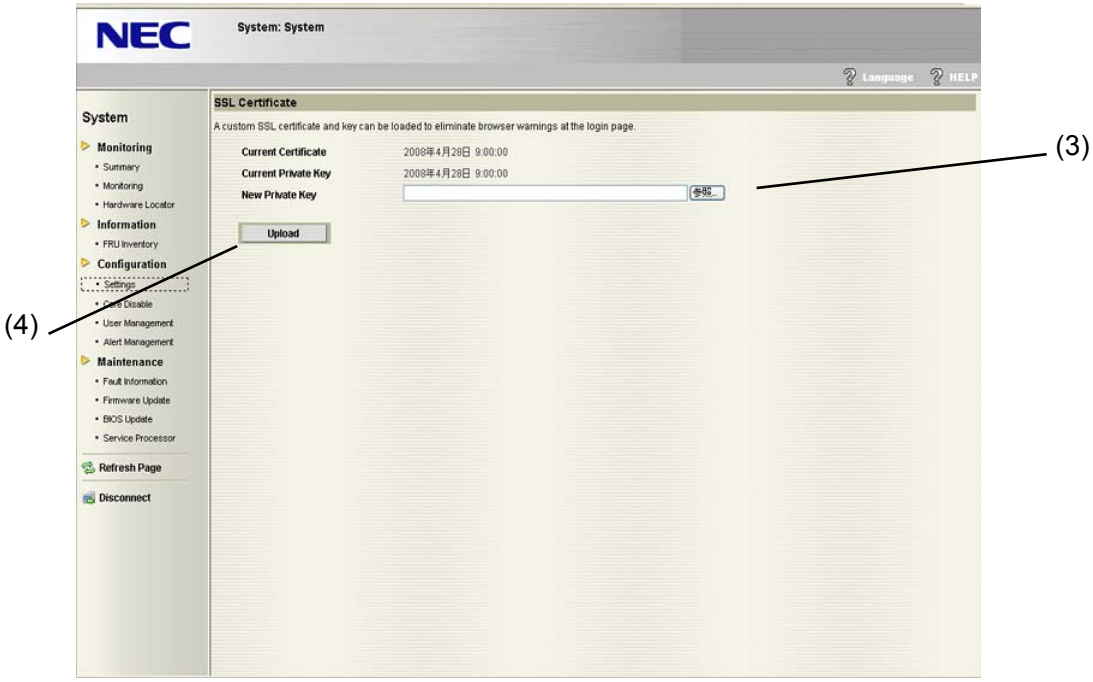
SSL Certificate is displayed by selecting **"Settings"** and clicking **"SSL Certificate"** of the menu on the left side of the screen.
Security Socket Layer (SSL) certificate can be loaded in **SSL Certificate.**



- Current Certificate : Issue date of the current SSL security certificate
- Current Private Key : Issue date of the current private key

(1) Specify SSL certificate data to be installed in **"New SSL Certificate Upload."**

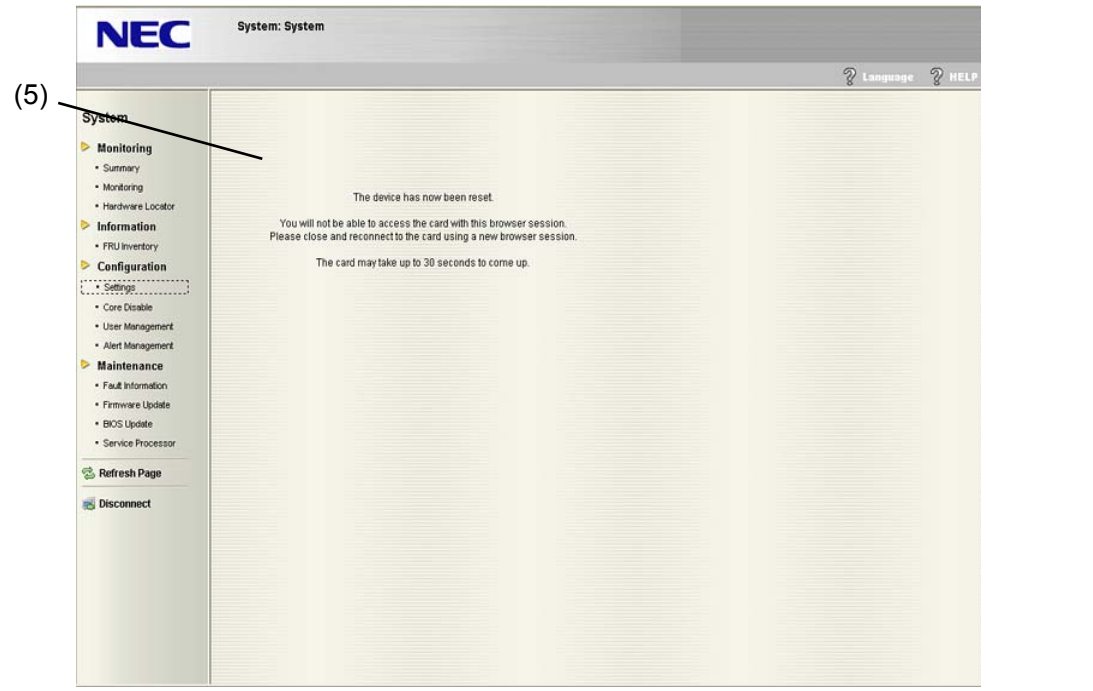
(2) Click **"Upload"** to switch to the selection menu for **"New Private Key."**



(3) Specify private key data of SSL certificate to be installed in **"New Private Key."**

(4) Clicking **"Upload"** enables to send SSL certificate data and private key data, and to install them to all the SPs.

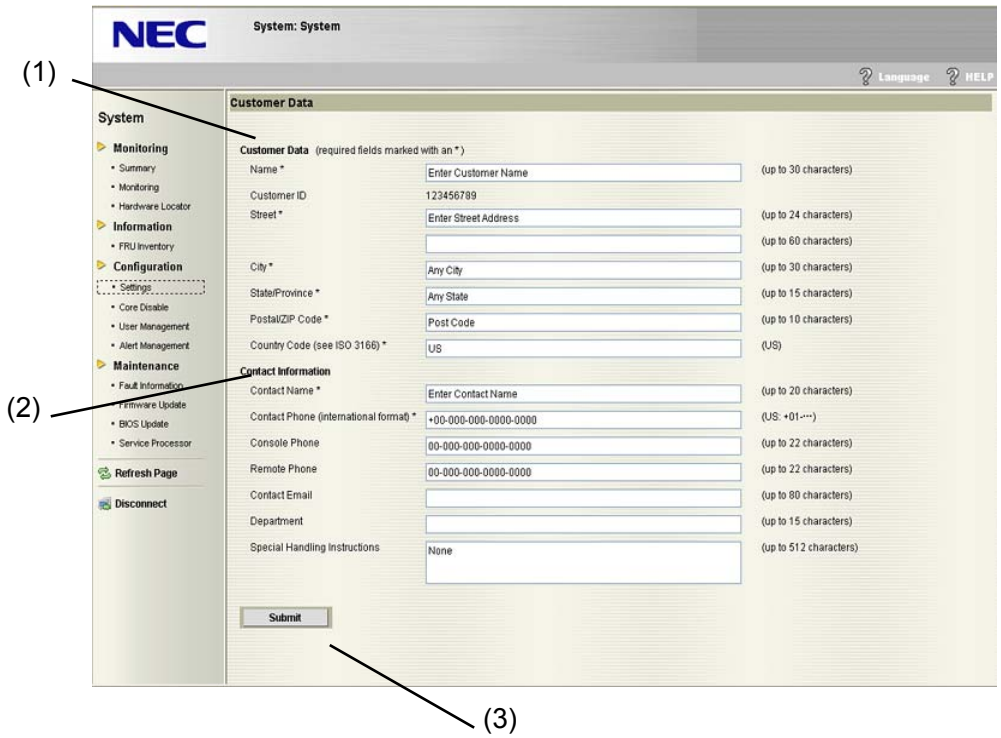
IMPOTANT:
Clicking "Upload" button enables to switch display of the selected item name for SSL certificate and private key data.



(5) Message indicating completion of SSL security certificate installation is displayed.

1.4.5 Customer Data

Customer Data is displayed by selecting **"Settings"** and clicking **"Customer Data"** of the menu on the left side of the screen.
Individual customer data can be set/changed in **Customer Data.**



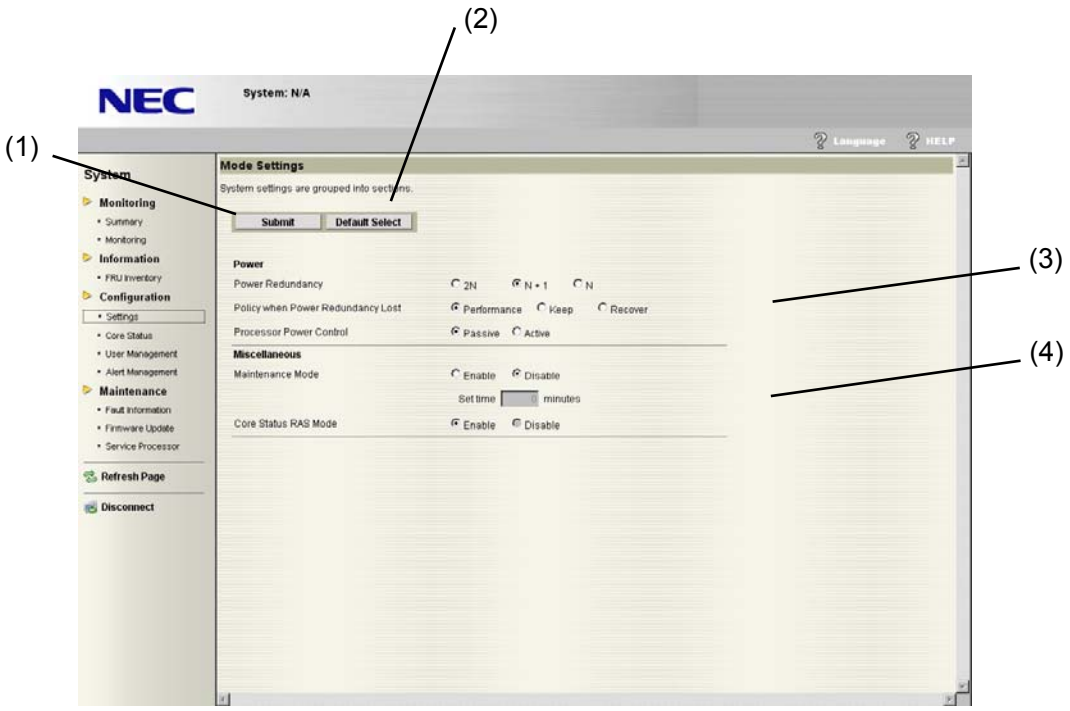
(1) Customer Data
The following individual customer information is displayed/set.
- Name
- Street
- City
- State/Province
- Postal/ZIP Code
- Country Code

(2) Contact Information
The following contact information is displayed/set.
- Contact Name
- Contact Phone
- Console Phone
- Remote Phone
- Contact Email
- Department
- Special Handling Instructions

(3) Clicking **"Submit"** enables to set the information of (1) and (2).

1.4.6 Mode Settings

Mode Settings is displayed by selecting **"Settings"** and clicking **"Mode Settings"** of the menu on the left side of the screen.
Various operations for the system can be set in **Mode Settings.**



(1) Clicking **"Submit"** enables to set the information for (3) and (4).

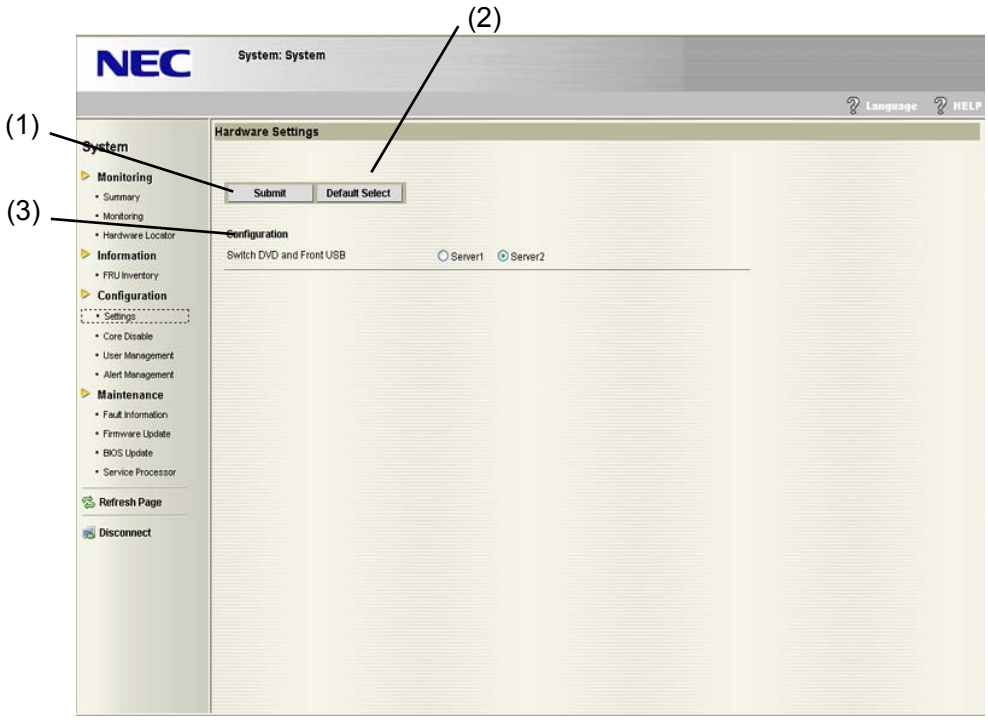
(2) Clicking **"Default Select"** enables to restore the operation mode status to default status.

(3) Power
Display/set power related setting information.
Power Redundancy : Power redundancy
Policy when Power Redundancy Lost : Process to be taken at power redundancy loss
Processor Power Control : Processing device power consumption control

(4) Miscellaneous
Display/set other setting information.
Maintenance Mode : Maintenance mode
Core Status RAS Mode : Core RAS function control

1.4.7 Hardware Settings

Hardware Settings is displayed by selecting **"Settings"** and clicking **"Hardware Settings"** of the menu on the left side of the screen.
Various settings for the system can be set in **Hardware Settings.**



(1) Clicking **"Submit"** enables to set the information of (3).

(2) Clicking **"Default Select"** enables to restore configuration status to default status.

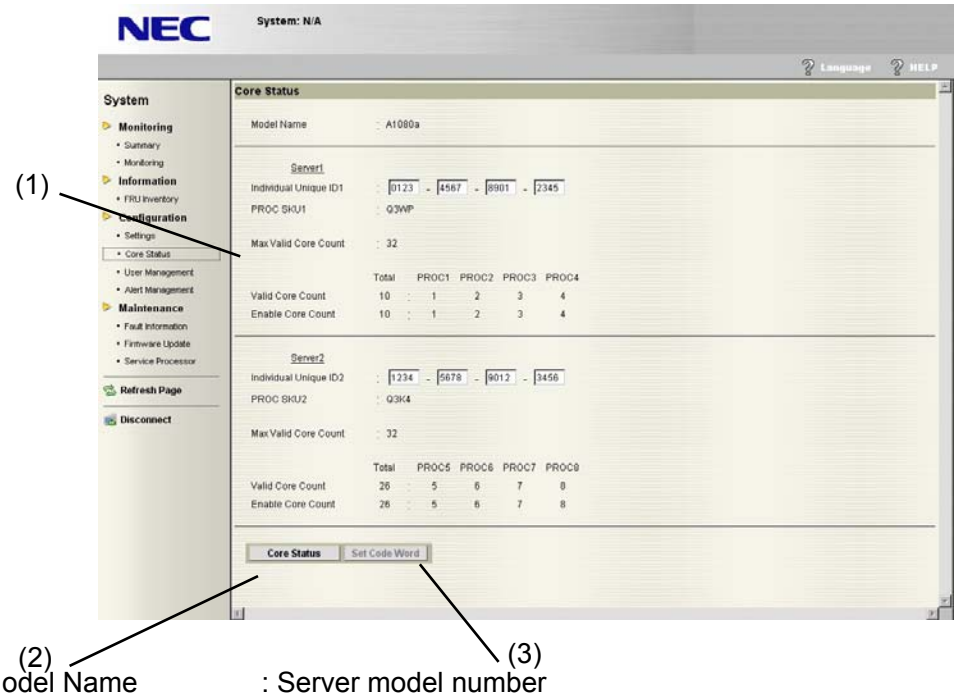
(3) Configuration
Set the configuration information.
Switch DVD and Front USB : Switch the server connecting DVD and front USB

IMPORTANT:
•Hardware Settings is available for A1080a-S/A1080a-D model. But don't execute this menu for A1080a-S model. It is invalid operation because Server 2 doesn't exist. If the connection destination is changed to Server 2, execute this menu again and connect to Server 1.
•Execute online switching while the DC power is off because the drive may not be recognized depending on timing. When switching after OS is operating, the drives are recognized as USB devices. So please follow the USB operation on OS when removing/unmounting or inserting/mounting the devices.

1.5 Core Status

IMPORTANT:
The function of (3) is not supported at this time.

Core Disable is displayed by selecting **"Core Status"** from the menu on the left side of the screen.
Setting and display for Core inside the processor socket can be set in **Core Status.**

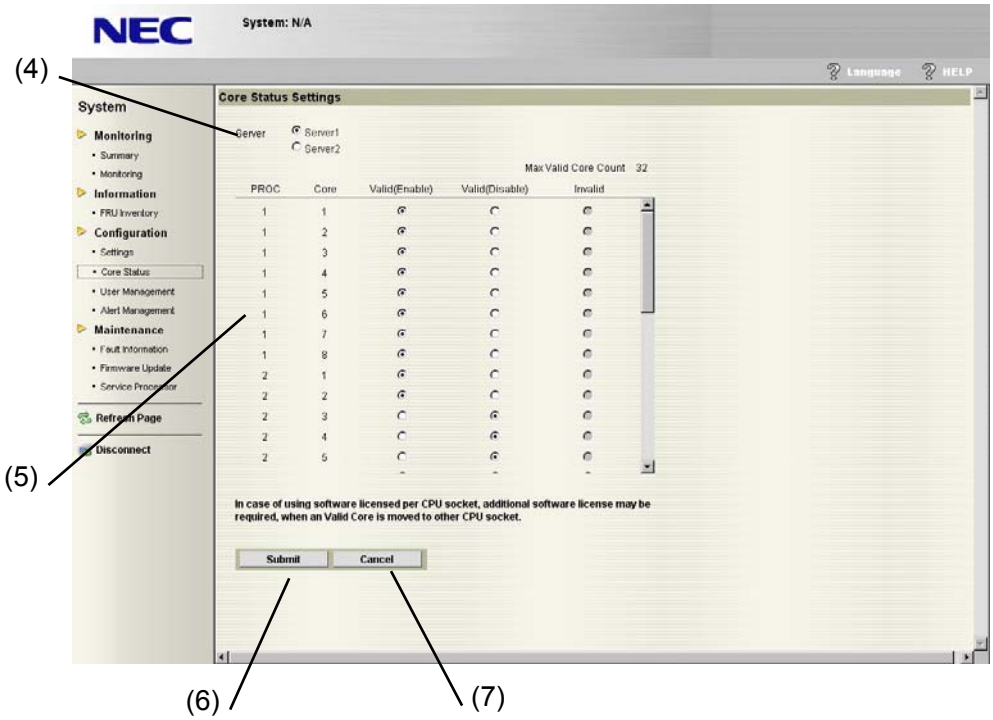


- Model Name : Server model number
- Individual Unique ID* : Individual unique number
- PROC SKU : CPU model number
- Max Valid Core Count : Display the definable maximum number of Core in Valid status.
- Valid Core Count : Number of Core in Valid status
- Enable Core Count : Number of Core in Enable status

(1) Display Core status (Valid/Invalid, Enable/Disable) by CPU as the number of Valid and Enable.

(2) Clicking **"Core Status"** enables to move to Core status change screen.

(3) This functions is not supported at this time.



Display or set Valid (Enable/Disable)/Invalid by Core unit.

IMPORTANT:
- **When setting to Valid(Enable/Disable) status, the total count of "Valid Core Count" must not exceed "Max Valid Core Count" .**
- **Core numbers are differently displayed depending on processor type.**
- **When the PMM is added or exchanged, core numbers are displayed in ascending-order.**
  The core number will be assigned after DC power is turned on.

(4) Selecting the server enables to display or set in **"Server."**

• MAX Valid Core Count: The maximum number of cores which can be in valid status in the applicable server

(5) Display Valid (Enable/Disable)/Invalid of each core in the applicable server.
Core status can be changed by operating radio button.

IMPORTANT:

[For S model, D model server 1 and E model]

- **When PROC1 is Enable, set to Valid(Enable) for at least 1 core or more cores of the PROC1.**
  When PROC1 is Disable and PROC3 is Enable, set to Valid (Enable) for at least 1 core or more cores of the PROC3.
- **It is possible to confirm whether if the PROC is Enable by Fault Information(Enable/Disable) on the Server Web Console.**
  Check the status of PROC1 or PROC3 before setting core status.

Fault Information (Enable/Disable Component)

Setting		Name
O Enabled	O Disabled	Proc1
O Enabled	O Disabled	Proc3

[For D model server 2]

- **When PROC5 is Enable, set to Valid(Enable) for at least 1 core or more cores of the PROC5.**
  When PROC5 is Disable and PROC7 is Enable, set to Valid (Enable) for at least 1 core or more cores of the PROC7.
- **It is possible to confirm whether if the PROC is Enable by Fault Information(Enable/Disable) on the Server Web Console.**
  Check the status of PROC5 or PROC7 before setting core status.

Fault Information (Enable/Disable Component)

Setting		Name
O Enabled	O Disabled	Proc5
O Enabled	O Disabled	Proc7

[Common]

- **When setting the processor(PROC) Enable/Disable, refer to "Enable/Disable Component" on Server Web Console.**

IMPORTANT:

•Cores may not be recognized after releasing, replacing or removing & inserting PROC or PMM.

Check cores by pressing "Clear All" of "Fault Information" on the Server Web Console. Refer the section 2.10 for "Fault Information".

•When replacing PROC or changing the number of cores, press "Clear All" and set "Enable" for the cores.

•After pressing "Clear All", core count might be 10. If so, set Enable/Disable of the core properly. Then after the power on, the setting will be available.

For Example) If cores of PROC2 are not recognized

1) **Check the cores on Server Web Console 1**
2) **The cores are recognized again by doing "CoreStatus" of "CoreStatus".Then set "Enable" for the cores of PROC2.**
3) **Power on the server**

(6) Clicking **"Submit"** enables to set the information of (5).

(7) Clicking **"Cancel"** enables to move to the initial screen of Core Status.

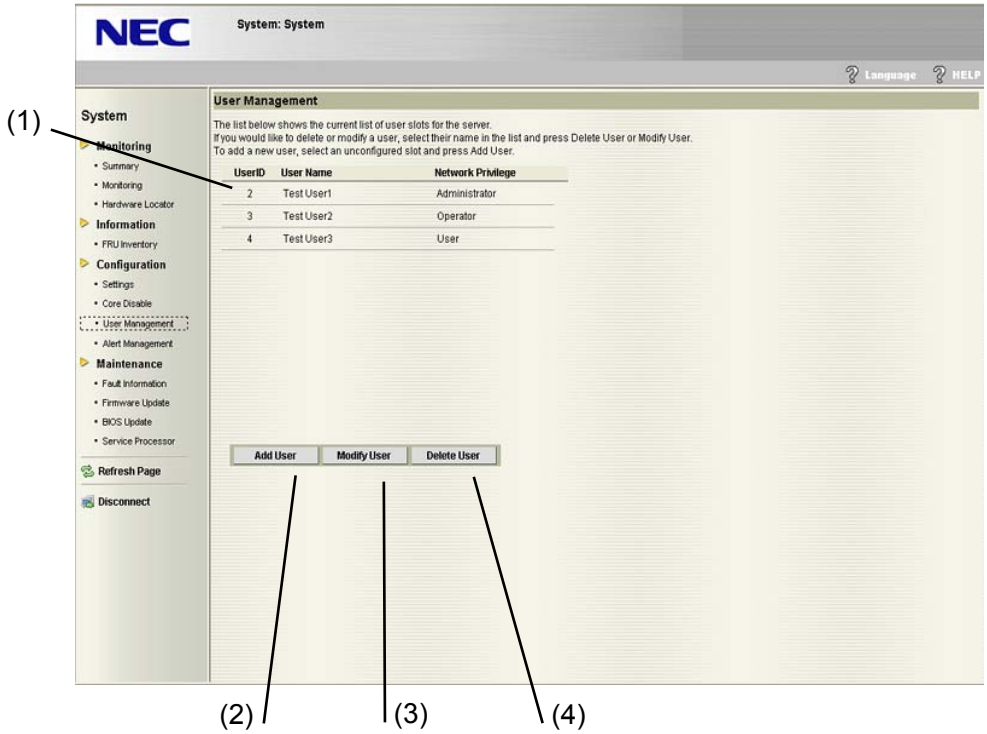
IMPORTANT:
When using software of the license system which is charged by CPU unit or CPU Core unit, additional license may be required when moving a valid Core to other CPU.

IMPORTANT:
In the event of failure of the core

Immediately after the failure,the failure core is displayed as Valid(Disable).
Then after the next power on, the Valid(Enable) setting of failure core will be replaced by alternate core.
The failure core will not be displayed.
Alternative core will be core of the Valid(Disable) setting in the same processor.

1.6 User Management

User Management is displayed by selecting **"User Management"** from the menu on the left side of the screen.
Add/deletion of user name and password change can be performed to login to system Web console and resource Web console in **User Management**.

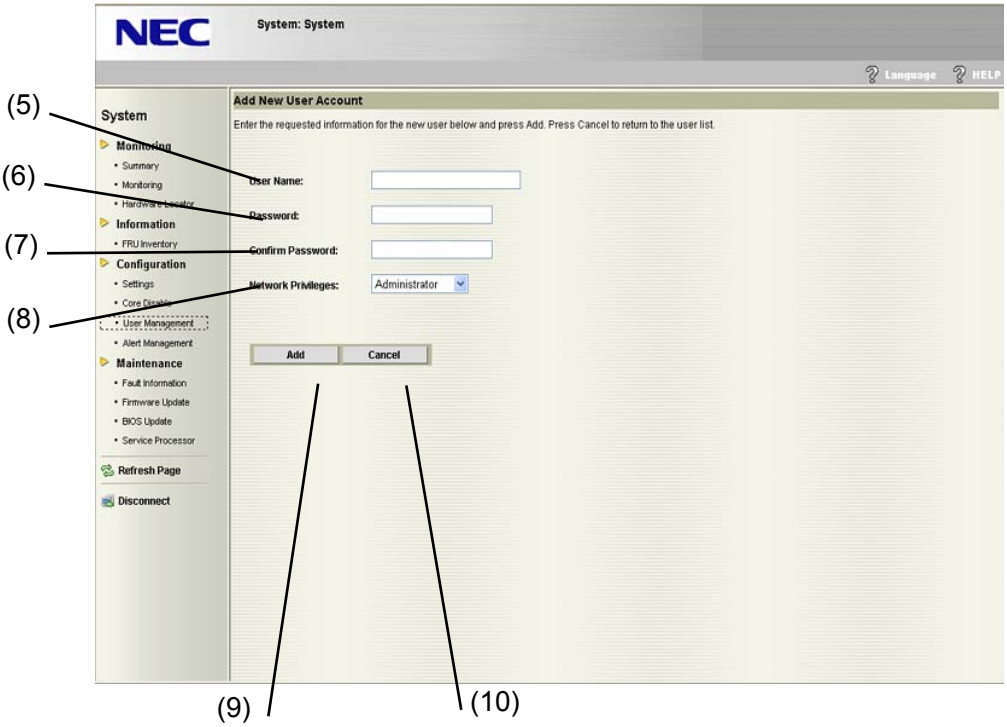


(1) Display user account information list
- User ID : User ID
- User Name : User account
- Network Privilege : Privilege level

(2) Clicking **"Add User" enables** to move to **Add New User Account** screen.

(3) When selecting 1 of the users displayed in list in (1) and clicking **"Modify User,"** the screen moves to **Modify User Account** screen to modify the registered user account.

(4) When selecting 1 of the users displayed in list in (1) and clicking **"Delete User,"** the registered user is deleted.



Register new user account information.

(5) User Name
Enter new user name.
Up to 16 characters of one-byte alphanumeric characters and "_", "-" of ASCII character code can be used for user name.

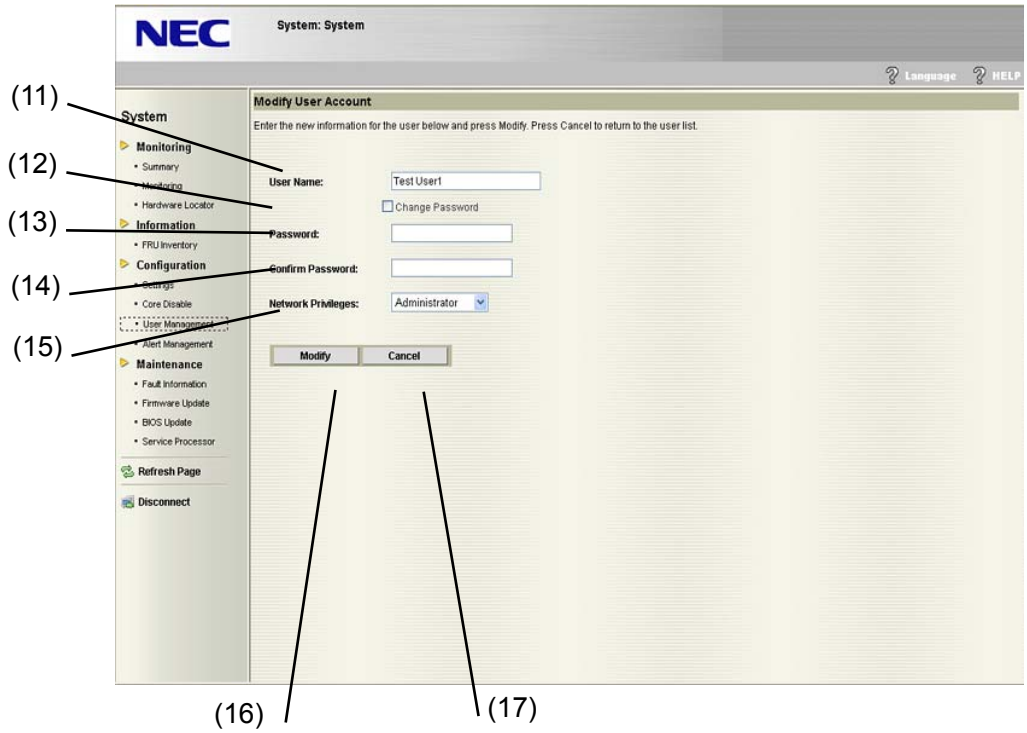
(6) Password
Enter password.
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for password.

(7) Confirm Password
Enter password for confirmation.
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for the password for confirmation, which must be the same as (6).

(8) Network Privileges
Select privilege level (Administrator, Operator, User) to be assigned to user account.

(9) Clicking **"Add"** enables to set the information of (5)-(8). The screen moves to the initial screen of User Management after setting is completed.

(10) Clicking **"Cancel"** enables to move to the initial screen of User Management.



Change user account information.

(11) User Name
Display/change user name.

(12) Checking **"Change Password"** enables to enter password in the password entry field.

(13) Password
Enter password.
Up to 20 characters of one-bye alphanumeric characters and symbols can be entered for password.

(14) Confirm Password
Enter password for confirmation.
Up to 20 one-bye alphanumeric characters and symbols can be entered for the password for confirmation, which must be the same as (13).

(15) Select permission level (Administrator, Operator, User) to be assigned to user account in **"Network Privileges."**

(16) Clicking **"Modify"** enables to set the information of (11) and (13) ~ (15), and the screen moves to the initial screen of User Management.

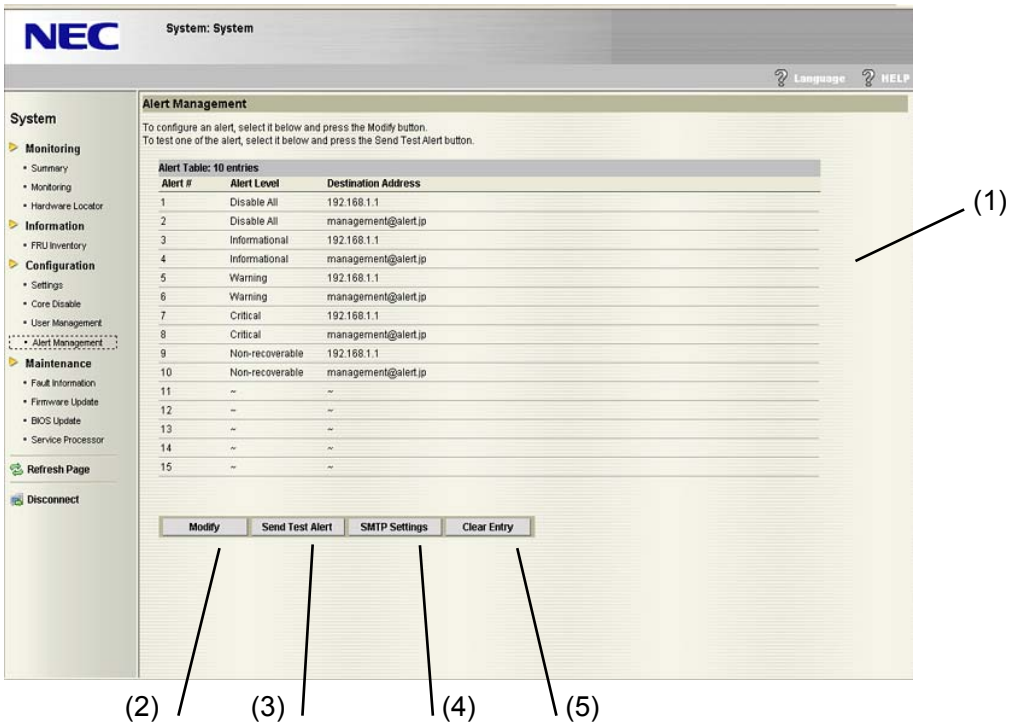
(17) Clicking **"Cancel"** enables to move to the initial screen of User Management.

Web console supports the following user accounts and passwords by default.

User Name	Privilege Level	Default password	Note
MWA	Adiministrator	superuser	This account is only for the system management software. This account is impossible to delete, but this password is possible to modify.
root	Adiministrator	superuser	This is a root account. This account is possible to delete, and this password is also possible to modify.
Administrator	Adiministrator	Administrator	This is an Administrator account. This account is impossible to delete, and this password is possible to modify.

1.7 Alert Management

Alert Management is displayed by selecting **"Alert Management"** from the menu on the left side of the screen.
Warning can be notified to the specified management PC, etc. when event occurs in the system. There are 2 types of notification methods, SNMP Trap and Email in **Alert Management,**



(1) Display alert information list.

Alert #	: Alert ID
Alert Level	: Alert level
Destination Address	: Destination address

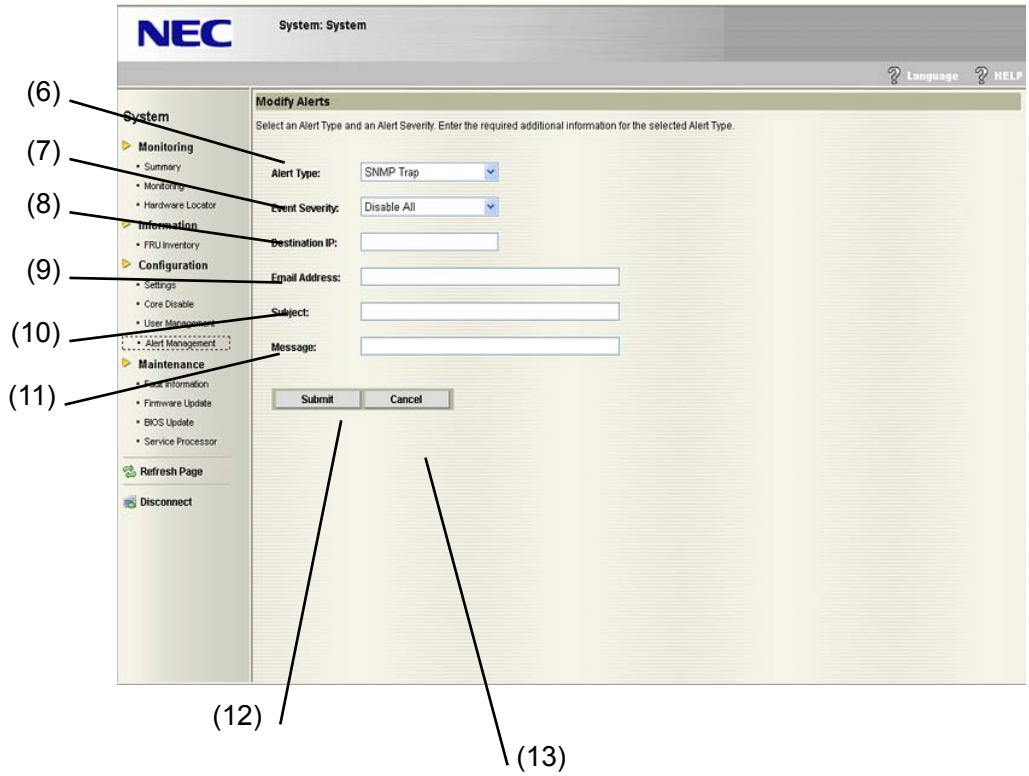
(2) When selecting one of the alert information displayed in list in (1) and clicking **"Modify,"** the screen moves to **Modify Alerts** screen to newly add or modify the selected alert information.

(3) When selecting one of the alert information displayed in list in (1) and clicking **"Send Test Alert,"** notification is tested according to the selected alert information.

IMPORTANT:
Click "Send Test Alert" after completing all the "Alert Management" settings.

(4) Clicking **"SMTP Settings"** enables to move to **SMTP Server Address** screen for SMTP server.

(5) When selecting one of the alert information displayed in list in (1) and clicking **"Clear Entry,"** the selected alert information is deleted.



Set alert information.

(6) Select alert type in **"Alert Type."**
Selection Options
SNMP Trap
Email

(7) Select alert level in **"Event Severity."**
Selection Options
Disable All
Information
Warning
Critical
Non-recoverable

IMPORTANT:
No alart for "Non-recoverable" will be reported because it is not defined.

(8) Set IP address in **"Destination IP."**
IP address can be set when alert type is SNMP Trap.

(9) Set Email address in **"Email Address."**
Email address can be changed when alert type is Email.

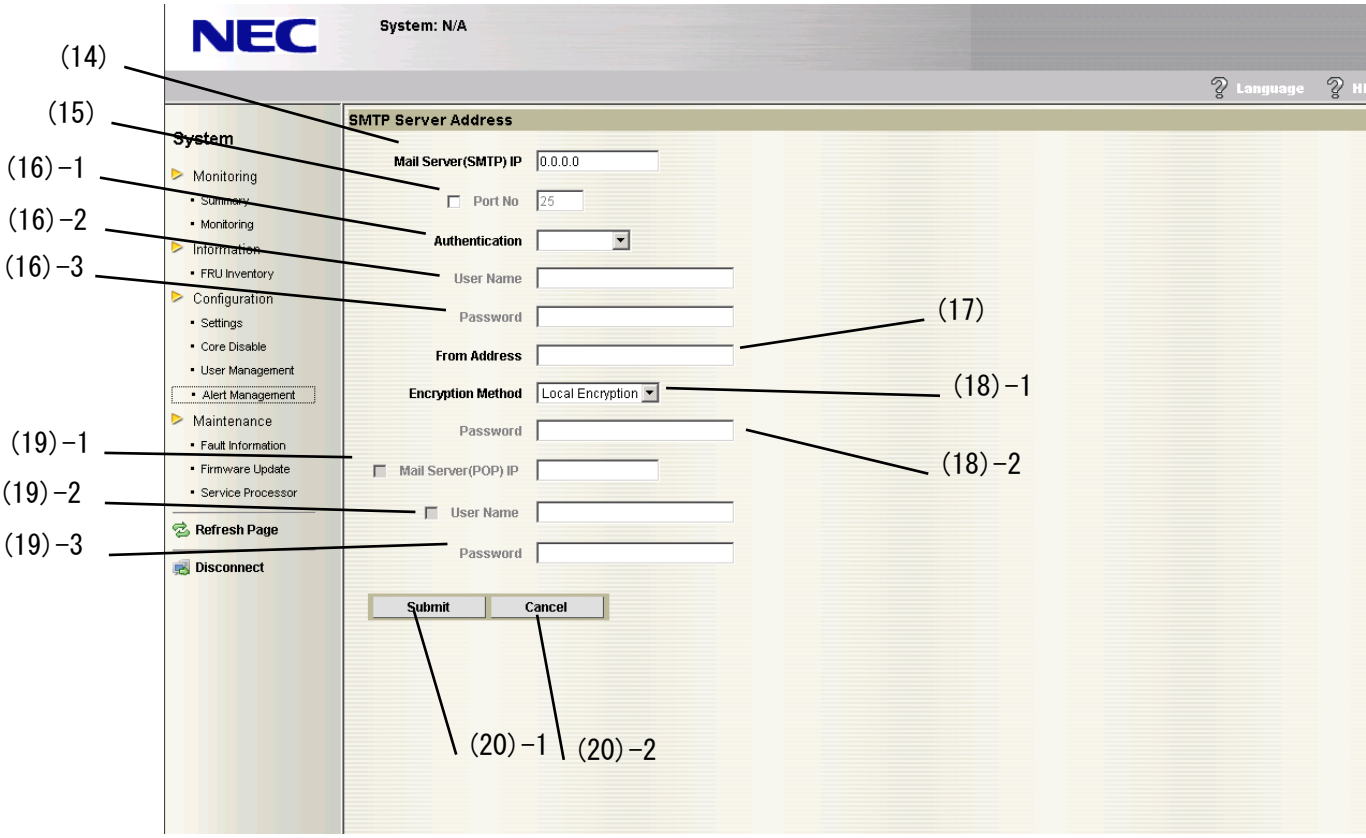
Up to 64 characters of one-byte alphanumeric characters and "_", "-" and "@" of ASCII character code can be used for Email address.

(10) Set subject in **"Subject."**
Subject can be changed when alert type is Email. 64 of alphabets and numbers and space can be used.

(11) Set message in **"Message."**
Message can be changed when alert type is Email. 64 of alphabets and numbers and space can be used.

(12) Clicking **"Submit"** enables to set the information of (6) ~ (11) and move to the initial screen of Alert Management.

(13) Clicking **"Cancel"** enables to move to the initial screen of Alert Management.



Set IP address for SMTP server.

(14) IP address of send mail server can be displayed and changed in **"Mail Server (SMTP)IP."**

(15) Checking the checkbox for **"Port No"** enables to set port number of send mail server.

(16) Selecting the checkbox for **"User Name"** to set login name, password and authentication

method for send mail server.

(16)-1 Select authentication type in **"Authentication."**
Selection Options
None
PLAIN
LOGIN
CRAM-MD5

(16)-2 "User Name"
Up to 16 characters of one-byte alphanumeric characters and "_" and "-" of ACII character code can be entered for user name.

(16)-3 "Password"
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for password.

(17) Set the sender address to "From Address"
one-byte alphanumeric characters and "_","-",". ","@" are available.

(18) Set encryption method for Email contents.

(18)-1 Select encryption method in **"Encryption Method."**
Selection Options
Local Encryption
AES Encryption

(18)-2 "Password"
Enter password in 4 or more and 14 or less one-byte alphanumeric characters and symbols when AES Encryption is selected in (18)-1.

(19)-1 "Mail Server (POP)IP"
This function is unavailable.

(19)-2 "User Name"
This function is unavailable.

(19)-3 "Password"
This function is unavailable.

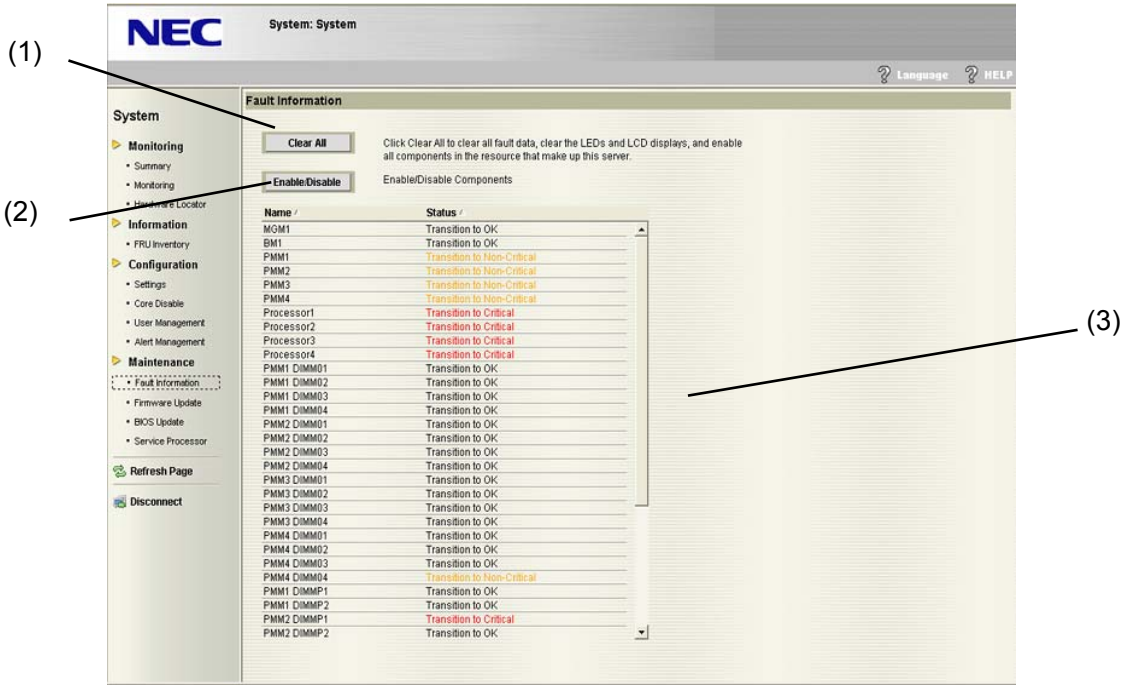
(20)-1 Clicking **"Submit"** enables to set the information of (14) ~ (19) and move to the initial screen of Alert Management.

(20)-2 Clicking **"Cancel"** enables to move to the initial screen of Alert Management."

IMPORTANT:
The alert mail might not be able to be used depending on the settings of the network and the SMTP server.

1.8 Fault Information

Fault Information is displayed by selecting **"Fault Information"** from the menu on the left side of the screen.
Fault information of hardware unit is displayed in **Fault Information.**



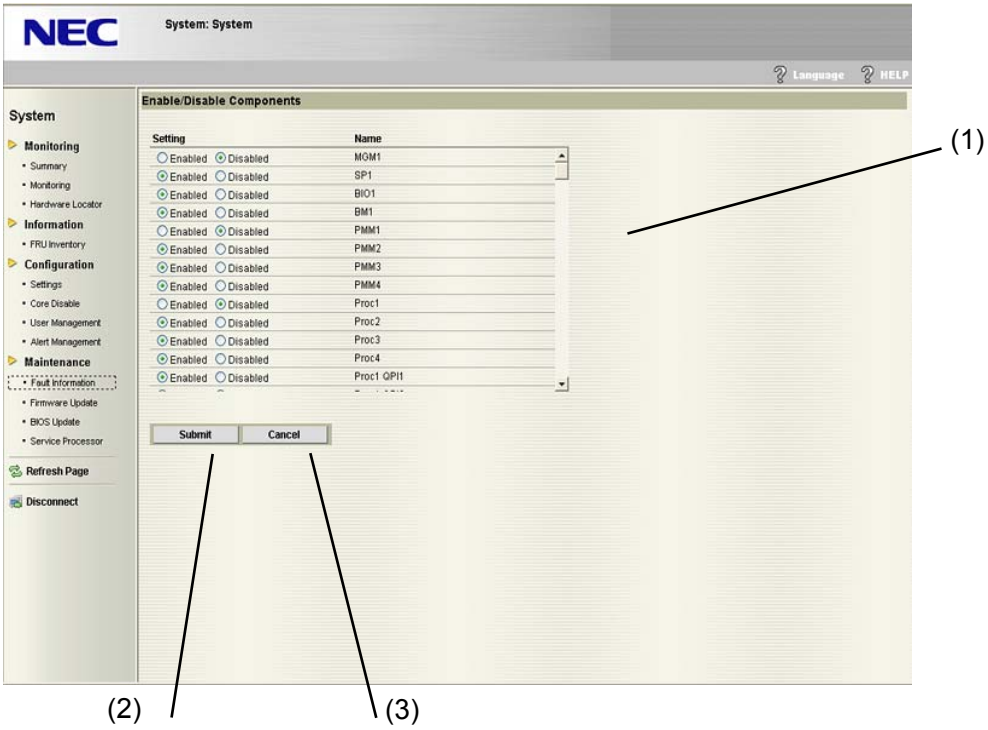
(1) Clicking **"Clear All"** enables to delete Fault sensor in a batch.

(2) Clicking **"Enable/Disable"** enables to move to **Enable/Disable Components** screen.

(3) Display Fault sensor information.
Name : Fault sensor name
Status : Status

1.8.1 Enable/Disable Component

Enable/Disable Component is displayed by selecting **"Fault Information"** and clicking **"Enable/Disable"** of the menu on the left side of the screen.
Hardware unit status (Enable/Disable) can be checked and hardware unit can be set manually in **Enable/Disable Component.**



(1) Display/set Enable/Disable status.
Contents to be displayed are as follows.
Setting : Enable/Disable status
Name : Disable sensor name

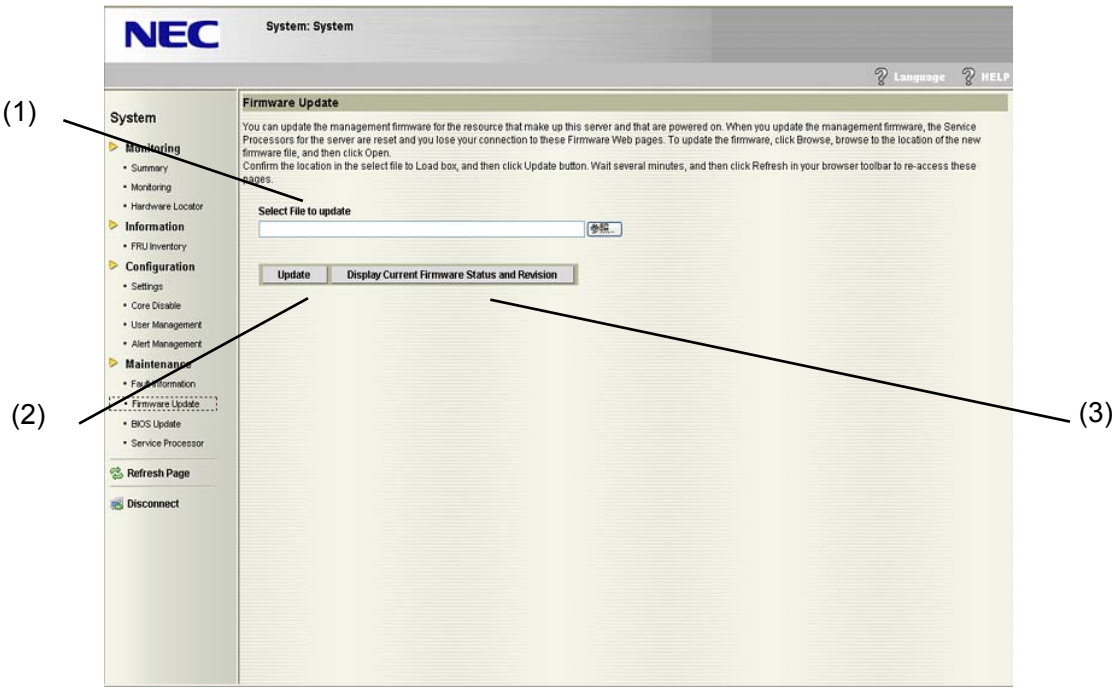
(2) Clicking **"Submit"** enables to set the information of (1).

(3) Clicking **"Cancel"** enables to move to **Fault Information** screen.

IMPORTANT:
- **When non-redundant hardware unit is set to Disable, server cannot be booted.**
- **When hardware unit which was previously disabled is set to Enable, the phenomenon may reoccur to the unit although it may temporarily recover.**

1.10 Firmware Update

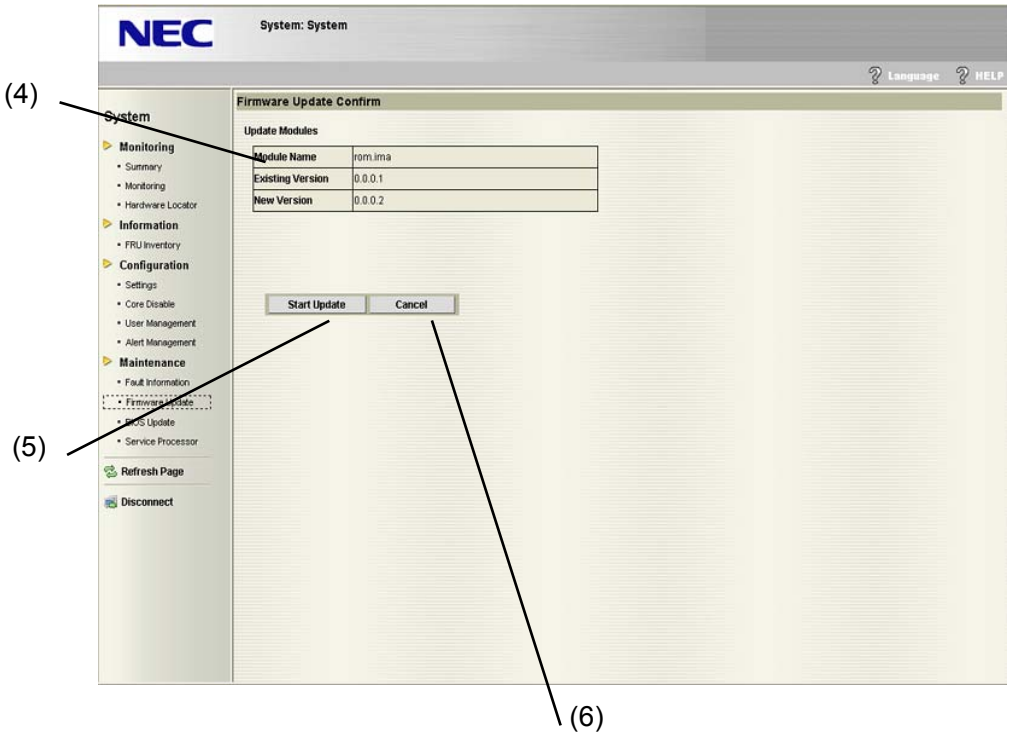
Firmware Update is displayed by selecting **"Firmware Update"** from the menu on the left side of the screen.
Management Firmware is updated in **Firmware Update.**



(1) Specify the file of Management Firmware to be updated in **"Select File to update."**

(2) Clicking **"Update"** enables to forward the file of Management Firmware to system Web server and the screen moves to **Firmware Update Confirm** screen.

(3) Clicking **"Display Current Firmware Status and Revision"** enables to display update result of Management Firmware and Management Firmware version in dialog.



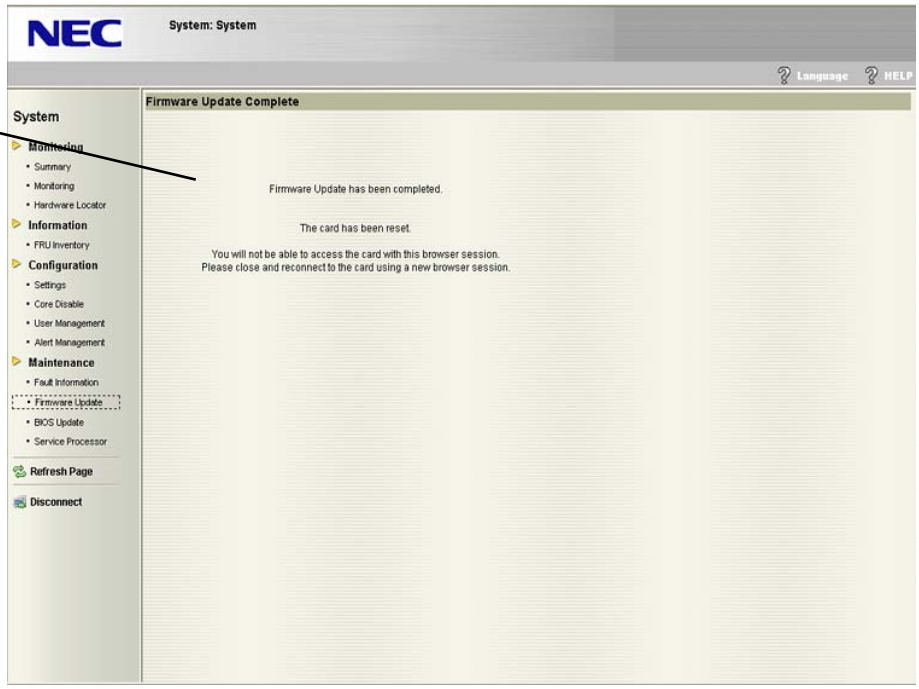
Management Firmware information to be updated and the list of existing information is displayed. Management Firmware of all the SPs in the system is updated.

(4) Display Management Firmware information to be updated.
Module Name : File name
Existing Version : Existing version
New Version : Version to be updated

(5) Clicking **"Start Update"** enables to display confirmation message for execution. Update is started by clicking **"OK."**

(6) Clicking **"Cancel"** enables to move to Firmware Update screen.

(7)



(7) Indicates the completion of update.

IMPORTANT:
When using A1080a-D, the Management Firmware for both servers must be the same version. Management Firmware Update from System WEB Console can make the same version to update both servers at the same time.

IMPORTANT:

●Don't update and reboot Management Firmware until the OS boot is finished after starting power on.

●Don't update and reboot Management Firmware until the power off is finished after starting OS shutdown.

●When using A1080a-D, don't update and reboot Managemnet Firmware until the OS boot is finished after starting power on even if the OS boot is being executed on the other server.

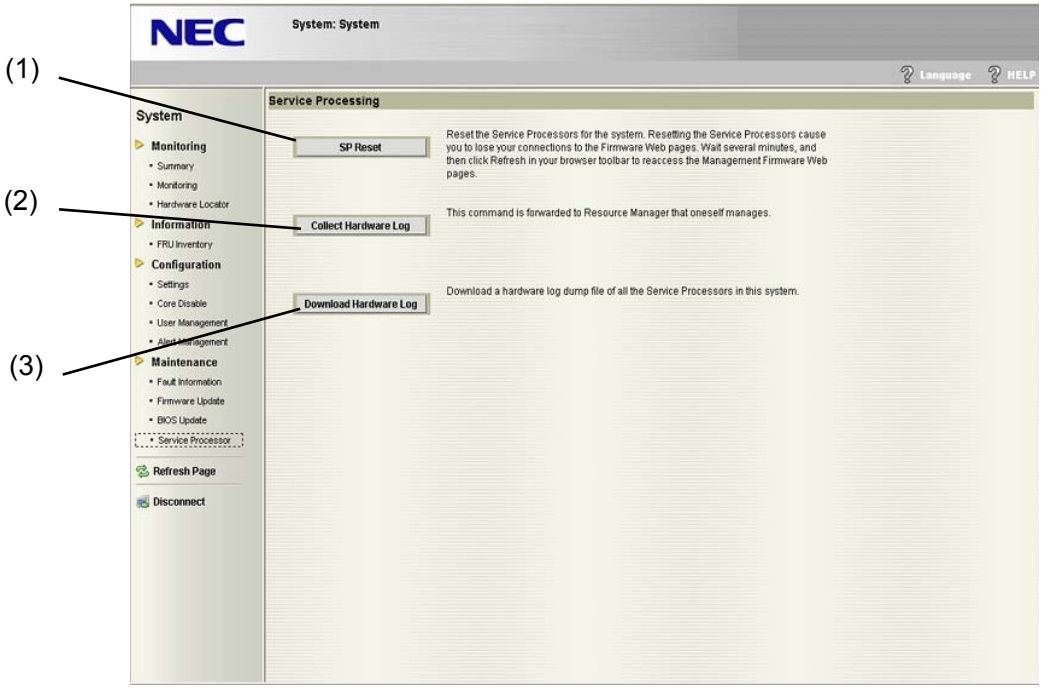
●When using A1080a-D, don't update and reboot Managemnet Firmware until the power off is finished after starting OS shutdown even if the power off is being executed on the other server.

If OS boot is finished, then the "Server Health" on Web console/ Monitoring/Summary will be "OS running/EFI Manager Booted".

If the power off is finished, then the "Server Health" on Web console/Monitoring/Summary will be "Stopped".

1.11 Service Processor

Service Processor is displayed by selecting **"Service Processor"** from the menu on the left side of the screen.
Management Firmware can be rebooted(reset) and all the hardware logs on the MGM on which System Web console operates can be collected in **Service Processor.**



(1) Clicking **"SP Reset"** enables to reset all the MGM(BMC)s configuring the system.

(2) Clicking **"Collect Hardware Log"** enables to collect hardware logs stored in SPI-Flash-ROM in a batch by the MGM on which the system Web console operates.

(3) Clicking **"Download Hardware Log"** enables to download the log file collected in (2).

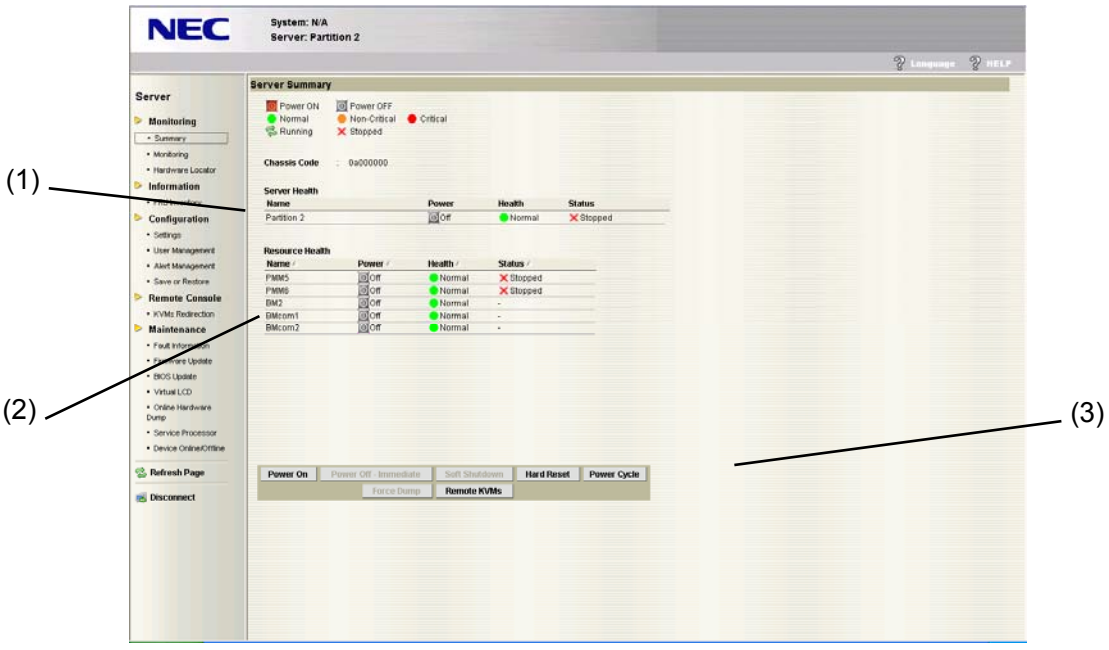
Server Web Console

To connect to Server Web Console, enter IP address set in the address field by going to **"Server -> SVRx Network Menu"** (SVRx is SVR1 or SVR2) from EXPRESSSCOPE® Monitor after starting the browser. The set IP address can be checked by going to **"Server -> SVRx Network Menu -> View Information."**

It is possible to connect to Server Web Console by connecting to system Web console and clicking server name in display items for **"Server Health"** in Summary.

2.1 Summary

Summary is displayed by selecting **"Summary"** from the menu on the left side of the screen. The status of server and resource can be checked in **Summary.** Displayed information is automatically updated in Summary.
Clicking the button at the bottom of the screen enables to execute Power On/Off, soft shutdown, hard reset, force dump and KVM start.



(1) displays server status, (2) displays resource status, and (3) indicates various execution buttons.

The following is the description on each item displayed in Summary.

• Chassis Code : Display BIOS status.

(1) Server Health

Display server status.

Name : Server name

Power : Power status

Display (value)	Description
Off	DC power of all Server is OFF
On	DC power of at least 1 Server is ON.

Health : Overall server status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only.
Non-Critical	Recoverable Error occurrence. Maintenance is required inside the server.
Critical	Fatal Error occurrence. Maintenance is required inside the server.

Status : Server status

Display (value)	Description
Stopped	Stopped status.
BIST Running	BIST Running status.
Initializing	Boot-up (mounting) in progress status
EFI Manager Booted	EFI Manager Booted status
OS or T&D Starting	OS or T&D Starting status
T&D Running	T&D Running status
OS Running	OS Running status
Stopping	Shutdown (mounting) in progress status
Handling Fault	Handling Fault status
Handling DP	Handling DP status

(2) Resource Health

Display resource status.

Name : Resource name

Power : Resource power status

Display (value)	Description
Off	DC power of all Servers is OFF
On	DC power of at least 1 Server is ON

Health : Overall resource status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only.
Non-Critical	Recoverable Error occurrence. Maintenance is required inside the server.
Critical	Fatal Error occurrence. Maintenance is required inside the server.

Status : Resource operation status

Display (value)	Description
Stopped	Stopped.
BIST Running	BIST Running status.
Initializing	Boot-up (mounting) in progress status
Initialized	Boot-up (mounting) completed status
Running	Running status
Stopping	Shutdown (mounting) in progress status

(3) Execution buttons

Power ON : Power on server
Power OFF immediate : Shut down server forcibly
Soft Shutdown : Execute OS shutdown
Hard Reset : Execute hard reset
Power Cycle : Execute power cycle
Force Dump : Execute force dump
Remote KVMs : Move to remote console function start screen

IMPORTANT:
●The timing for AC power off
Before turning AC power off, confirm that one of the conditions below is true and the PSU status lamp of each power unit is blinking 1 minute later.

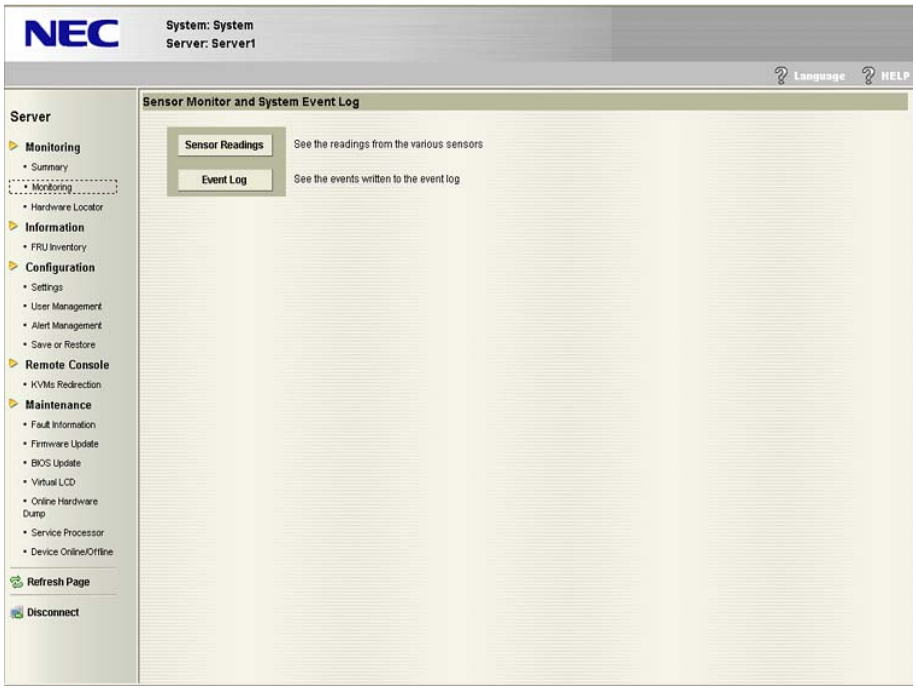
1)The System Power lamp of EXPRESSSCOPE® Monitor is off.
2)The POWER LED of virtual LCD for all servers are off.
3)All units of the Resource WEB Console are power off.

●Power On","Power Off-Immediate" Execution
When "Power On" is executed, displayed information will be updated after 110 seconds in Summary.
When "Power Off-Immediate" is executed, displayed information will be updated after 260 seconds in Summary.

2.2 Monitoring

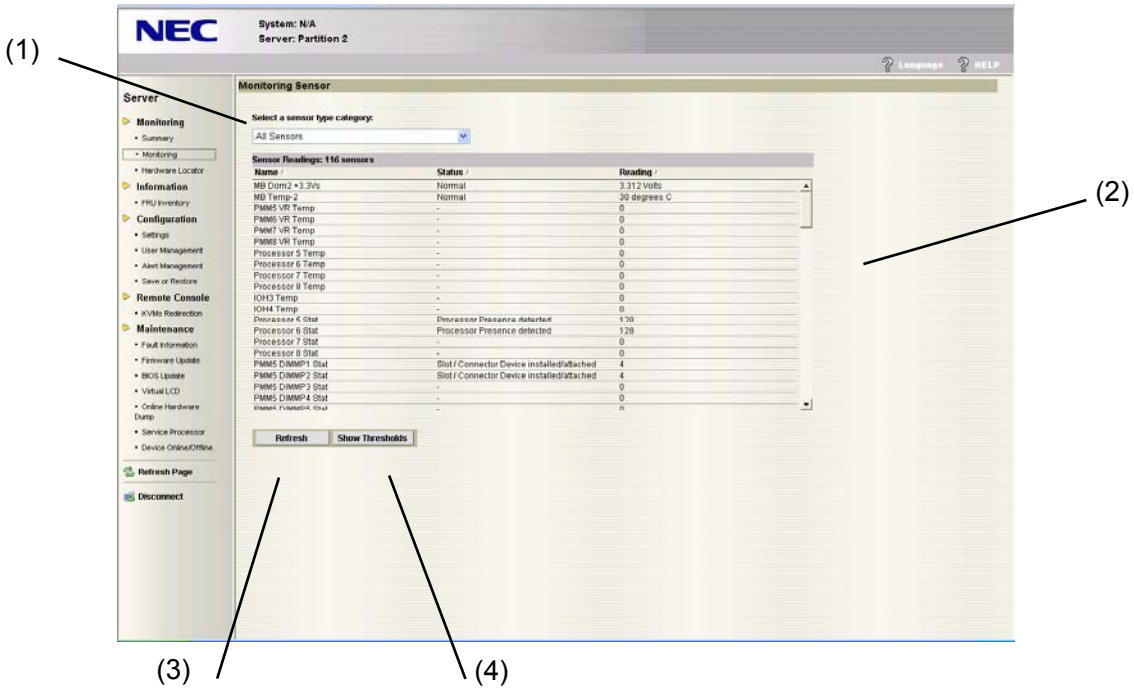
Monitoring is displayed by selecting **"Monitoring"** from the menu on the left side of the screen. The status of the following items of the server can be checked.

- Sensor Readings
- Event Log



2.2.1 Sensor Readings

Sensor Readings is displayed by selecting **"Monitoring"** and clicking **"Sensor Readings"** of the menu on the left side of the screen.
Current status of each hardware in the server can be checked in **Sensor Readings**. Display contents can be narrowed down by selecting display target from **"Select a sensor type category."**
This function is used by maintenance personnel for analysis in case of failure occurrence.



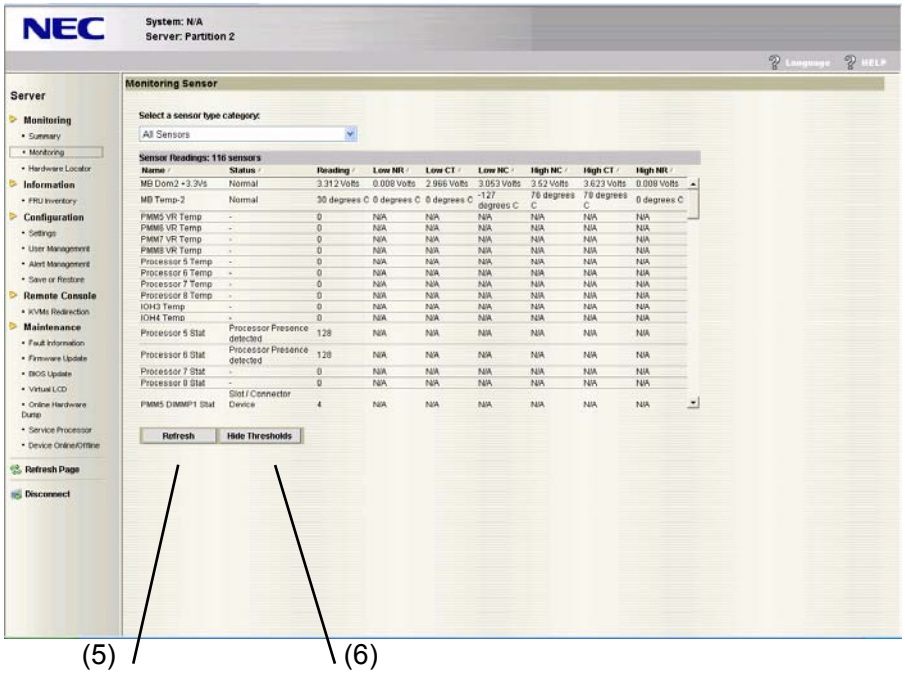
(1) Select sensor type category to be displayed from **"Select a sensor type category."**

(2) Sensor status is displayed.

Name : Sensor name
Status : Status
Reading : Sensor value

(3) Clicking **"Refresh"** enables to display sensor status again.

(4) Clicking **"Show Thresholds"** enables to display the threshold value.



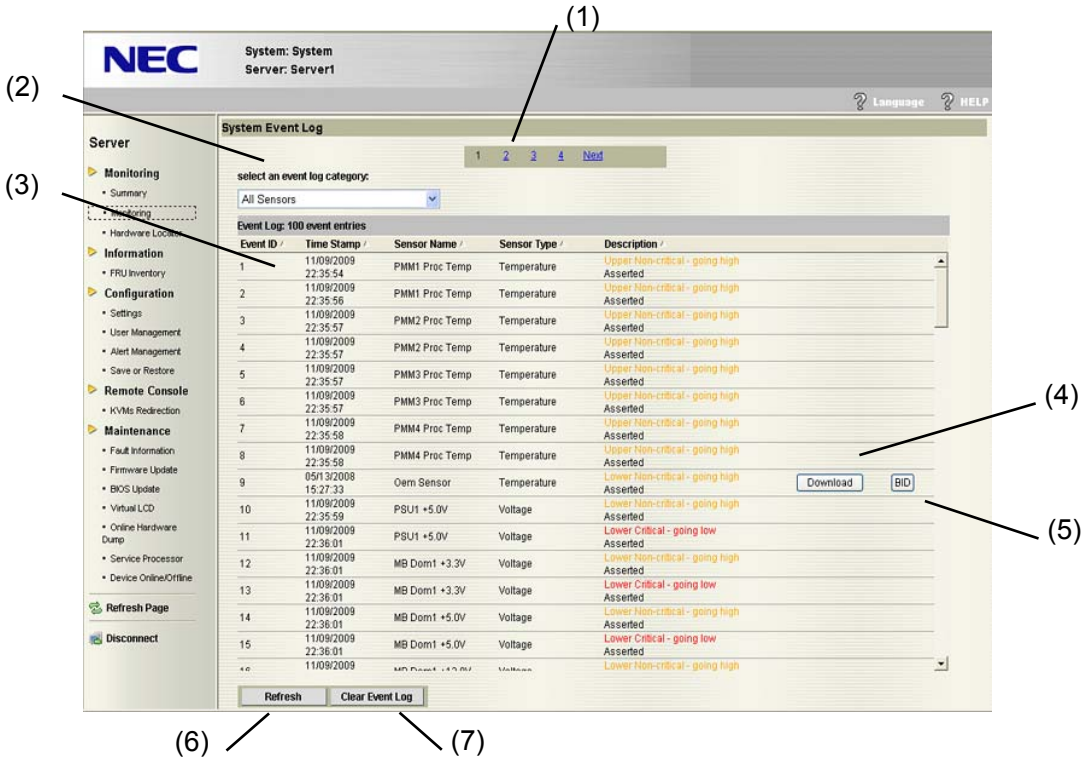
Low NR : Low non-recoverable threshold value
Low CT : Low critical threshold value
Low NC : Low non-critical threshold value
High NC : High non-critical threshold value
High CT : High critical threshold value
High NR : High non-recoverable threshold value

(5) Clicking **"Refresh"** enables to display sensor status again.

(6) Clicking **"Hide Thresholds"** enables to hide the threshold value for each sensor.

2.2.2 Event Log

Event Log is displayed by selecting **"Monitoring"** and clicking **"Event Log"** of the menu on the left side of the screen.
Event Log displays information of the event occurred in the server. For the event with more detailed information, the information can be acquired as a file by clicking **"Download"** button. By clicking **"BID,"** analysis result of BID can also be displayed.
Click **"Clear Event Log"** button to delete event contents.
This function is used by maintenance personnel for analysis in case of failure occurrence.



(1) Event log is displayed for 100 items per page. Switch pages of event logs to be displayed by selecting the link with number.

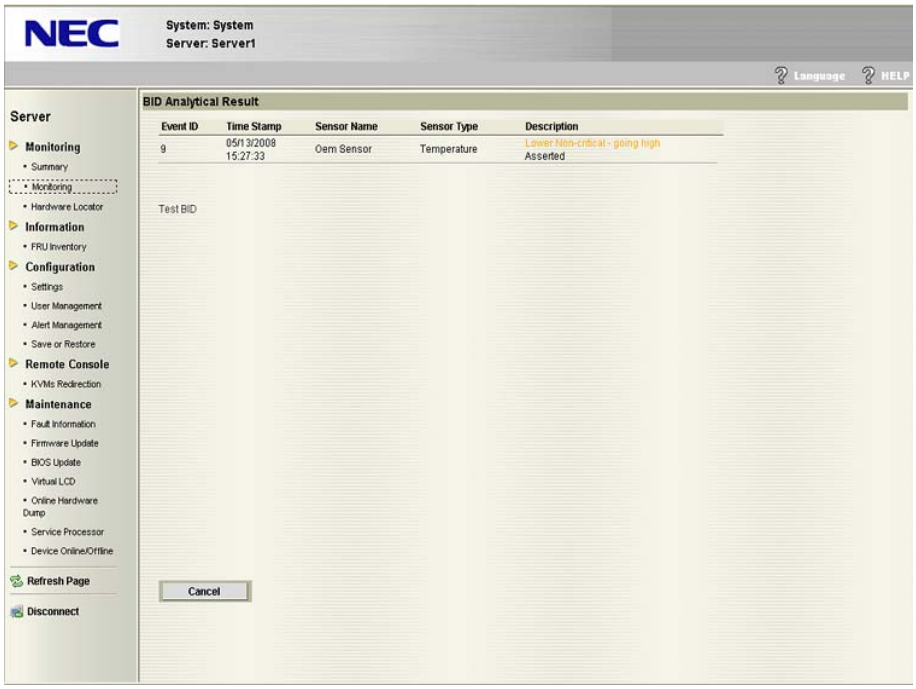
(2) Select sensor type to be displayed in **"Select an event log category."**

(3) Event log information is displayed.

Event ID	: Event ID
Time Stamp	: Time stamp
Sensor Name	: Sensor name
Sensor Type	: Sensor type
Description	: Event contents
Download	: Download button (display only when hardware log exists).
BID	: BID button (display only when hardware log exists).

(4) Clicking **"Download"** enables to download hardware log to management PC.

(5) Clicking **"BID"** enables to display BID analysis result.

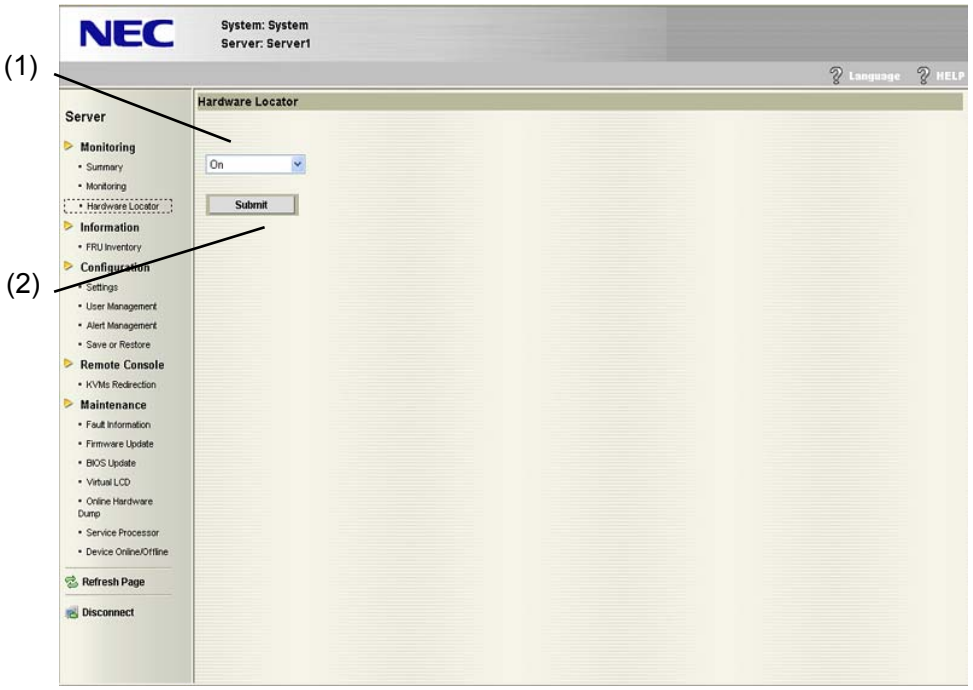


(6) Clicking **"Refresh"** enables to display event log again.

(7) Clicking **"Clear Event Log"** enables to delete all the event logs.

2.3 Hardware Locator

Hardware Locator is displayed by selecting **"Hardware Locator"** from the menu on the left side of the screen. The device in use can be checked visually by lighting the Indicator LEDs on the front and rear of the server in **Hardware Locator.**



(1) Select operation control in **"Indicator LED Control."**

Off : LED is off

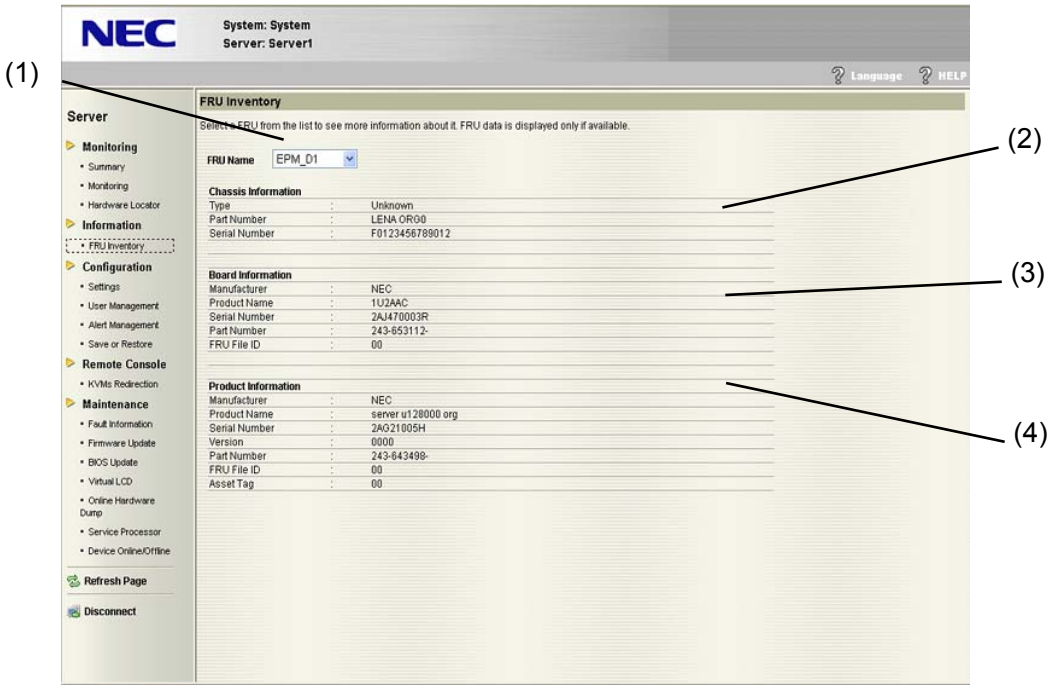
On : lighting

(2) Clicking **"Submit"** enables to execute the operation control selected in (1).

IMPORTANT:
Clicking "Submit" button executes the selected item.

2.4 FRU Inventory

FRU is displayed by selecting **"FRU Inventory"** from the menu on the left side of the screen. By selecting **"FRU Name,"** various information regarding the selected device is displayed in **FRU Inventory.**



(1) Select device from **"FRU Name."**

(2) Chassis Information
Chassis information is displayed.
- Type : Type
- Part Number : Part number
- Serial Number : Serial number

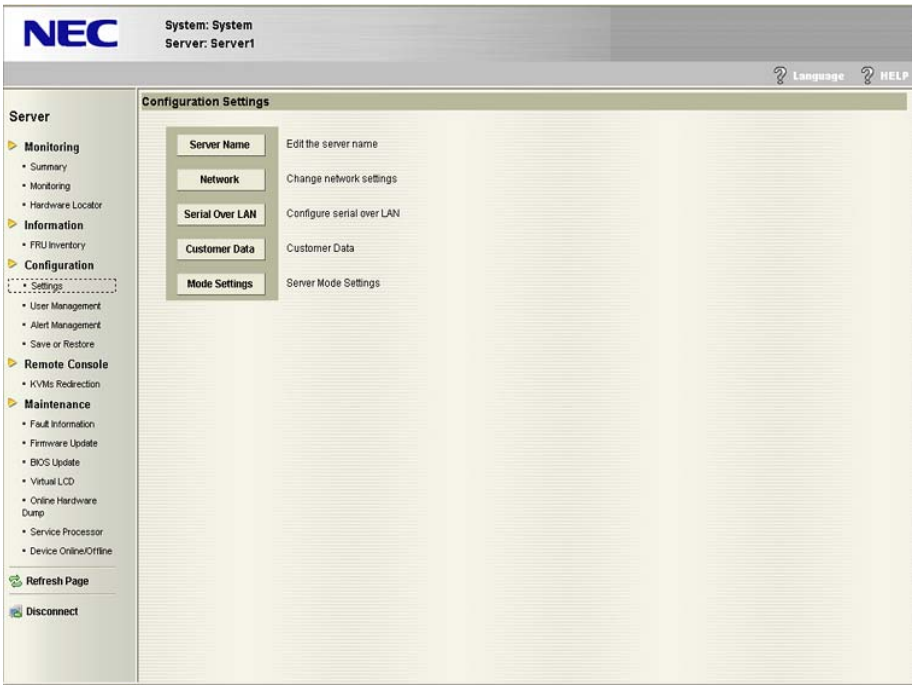
(3) Board Information
Board information is displayed.
- Manufacturer : Manufacturer name
- Product Name : Product name
- Serial Number : Serial number
- Part Number : Part number
- FRU File ID : FRU file ID

(4) Product Information
Product information is displayed.
- Manufacturer : Manufacturer name
- Product Name : Product name
- Serial Number : Serial number
- Version : Version
- Part Number : Part number
- FRU File ID : FRU file ID
- Asset Tag : Asset management tag

2.5 Settings

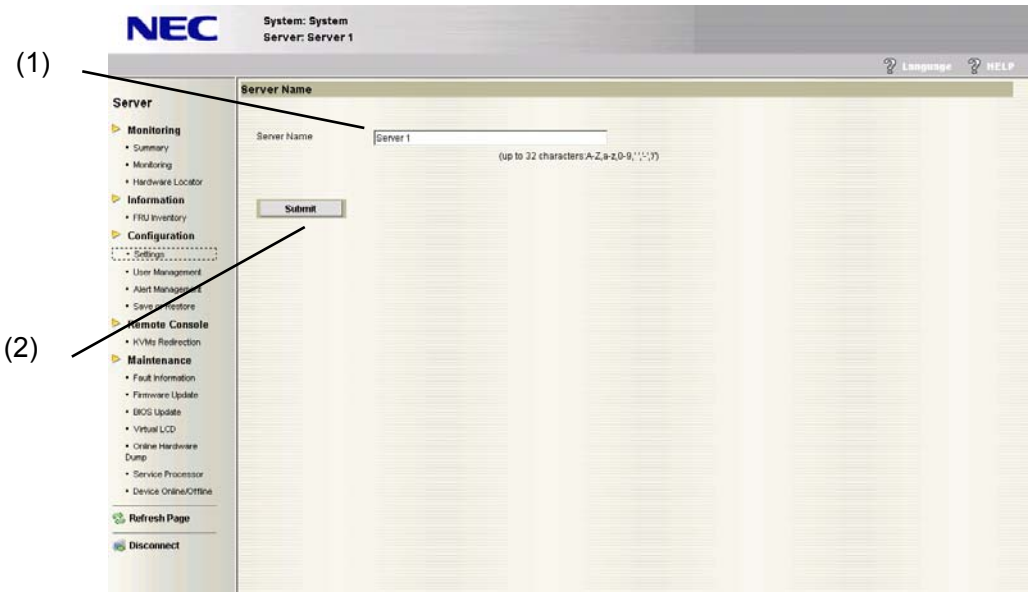
Settings is displayed by selecting **"Settings"** from the menu on the left side of the screen. Setting for the following items of the system can be set in **Settings**.

- Server Name
- Network
- Serial Over LAN
- Customer Data
- Mode Settings



2.5.1 Server Name

Server Name is displayed by selecting **"Settings"** and clicking **"Server Name"** of the menu on the left side of the screen. Server name can be set in **Server Name.** Up to 32 characters of one-byte alphanumeric characters and some of the symbols can be used. The set server name is displayed at the top of the screen.

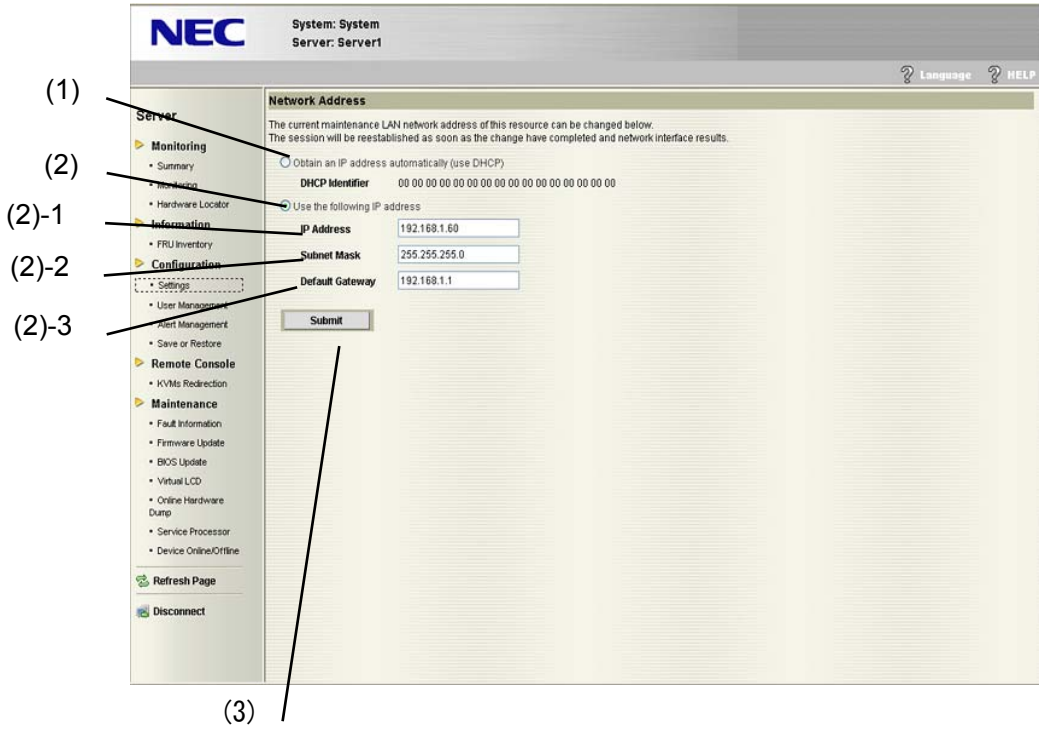


(1) Set/display server name in **"Server Name."**
Up to 32 characters of one-byte alphanumeric characters and blanks, "_" and "/" of ASCII character code can be entered for server name.

(2) Clicking **"Submit"** enables to set the information of (1).

2.5.2 Network

Network is displayed by selecting **"Settings"** and clicking **"Network"** of the menu on the left side of the screen.
Setting related to network of server Web console can be set in **Network.**
It can be set manually or by DHCP server.



(1) Selecting **"Obtain an IP address automatically (use DHCP)"** enables to acquire IP address using DHCP server.

• DHCP Identifier : Display Device GUID.

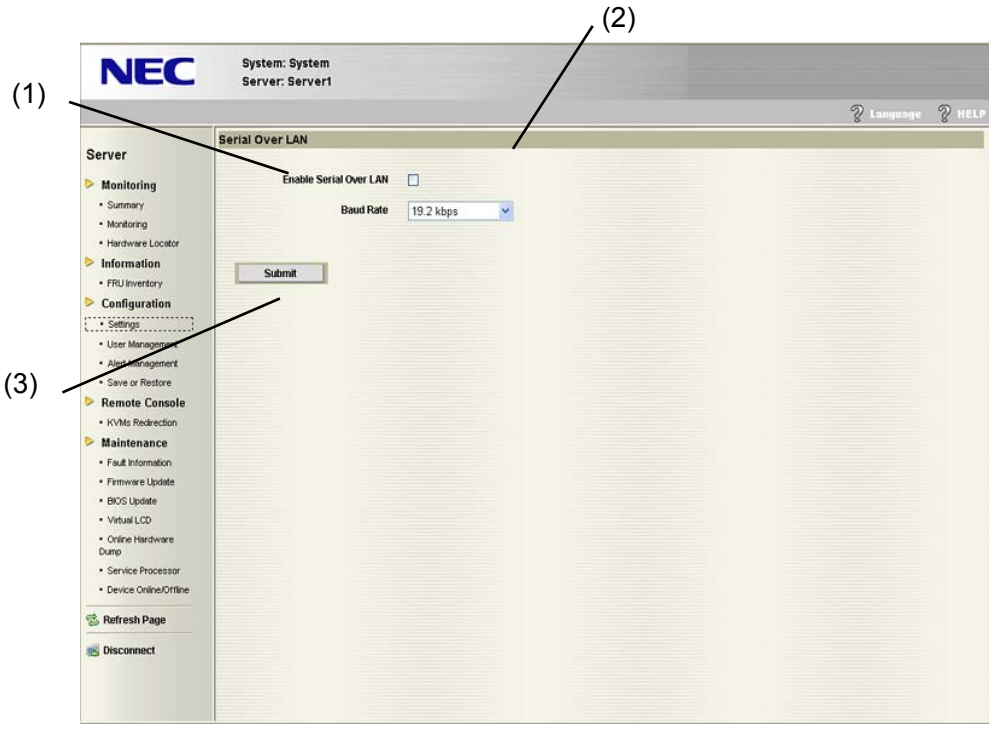
(2) Selecting **"Use the following IP address"** enables to set network information manually.

(2)-1 Set IP address in **"IP Address."**
(2)-2 Set subnet mask in **"Subnet Mask."**
(2)-3 Set default gateway in **"Default Gateway."**

(3) Clicking **"Submit"** enables to set the information of (1) or (2).

2.5.3 Serial Over LAN

Serial Over LAN is displayed by selecting **"Settings"** and clicking **"Serial Over LAN"** of the menu on the left side of the screen.
SOL (Serial Over LAN)transfer rate of the server can be set in **Serial Over LAN.**



(1) Selecting **"Enable Serial Over LAN"** enables to select Enable/Disable for SOL.

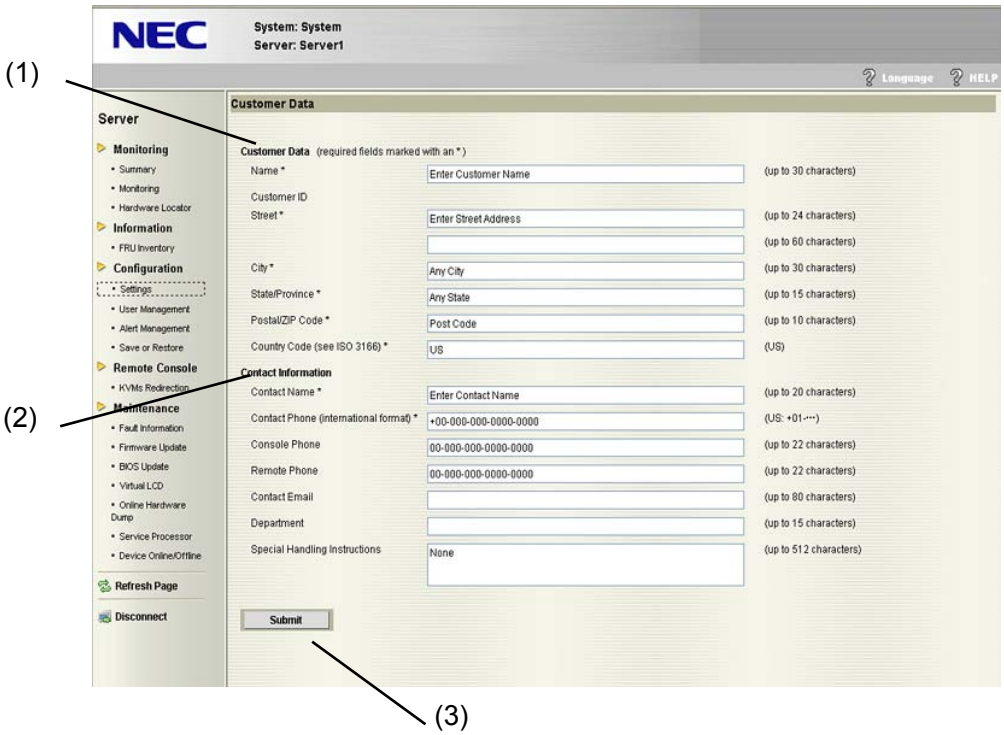
(2) Selecting **"Baud Rate"** enables to set the transfer rate of SOL.
Selection Options
- 9600 bps
- 19.2 kbps
- 38.4 kbps
- 57.6 kbps
- 115.2 kbps

(3) Clicking **"Submit"** enables to set the information of (2).

IMPORTANT:
This setting is not necessary when using SOL console from SMASH-CLP.

2.5.4 Customer Data

Customer Data is displayed by selecting **"Settings"** and clicking **"Customer Data"** of the menu on the left side of the screen.
Customer information can be set/changed in **Customer Data**.



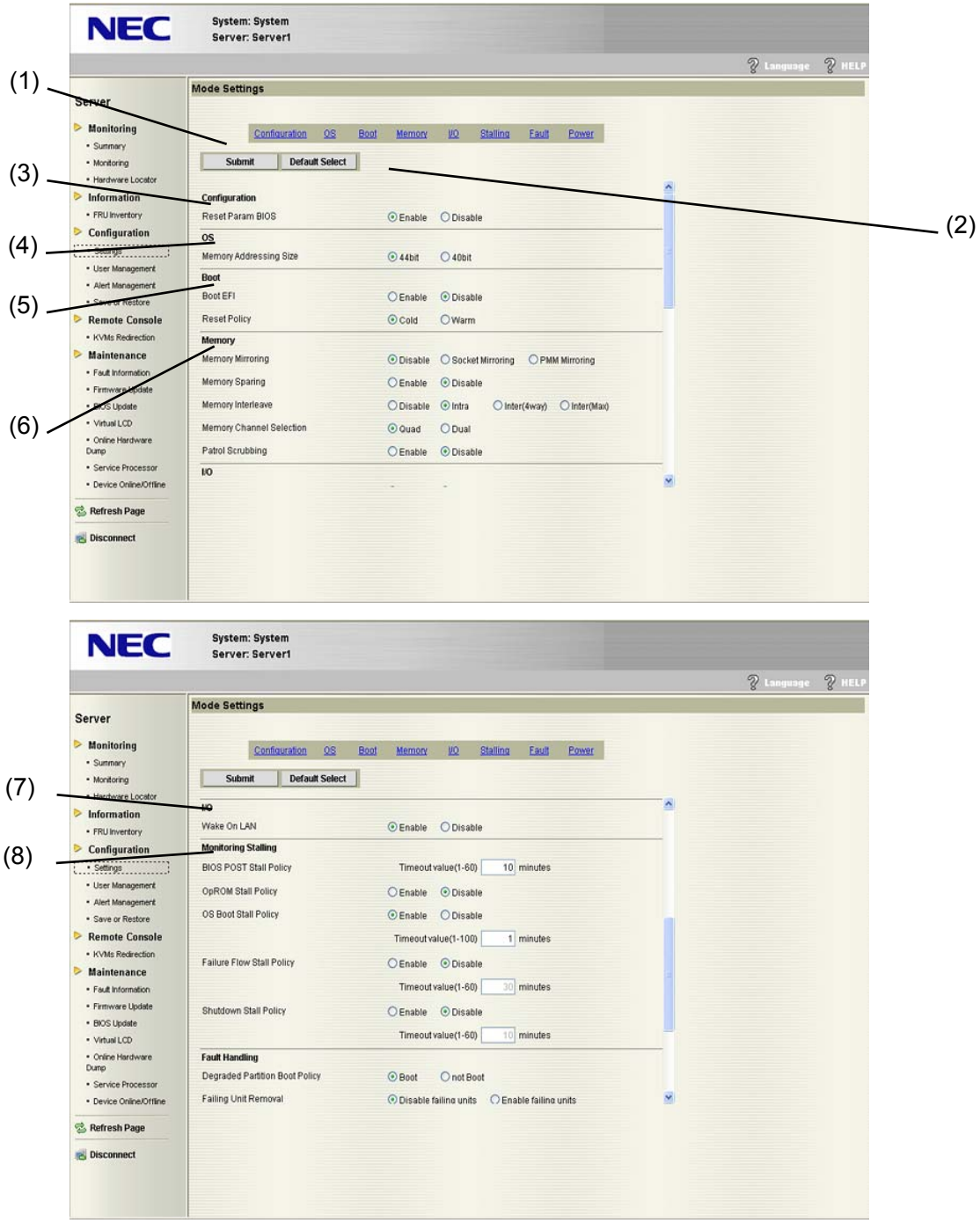
(1) Customer Data
Set/display the following customer information.
- Name
- Street
- City
- State/Province
- Postal/ZIP Code
- Country Code

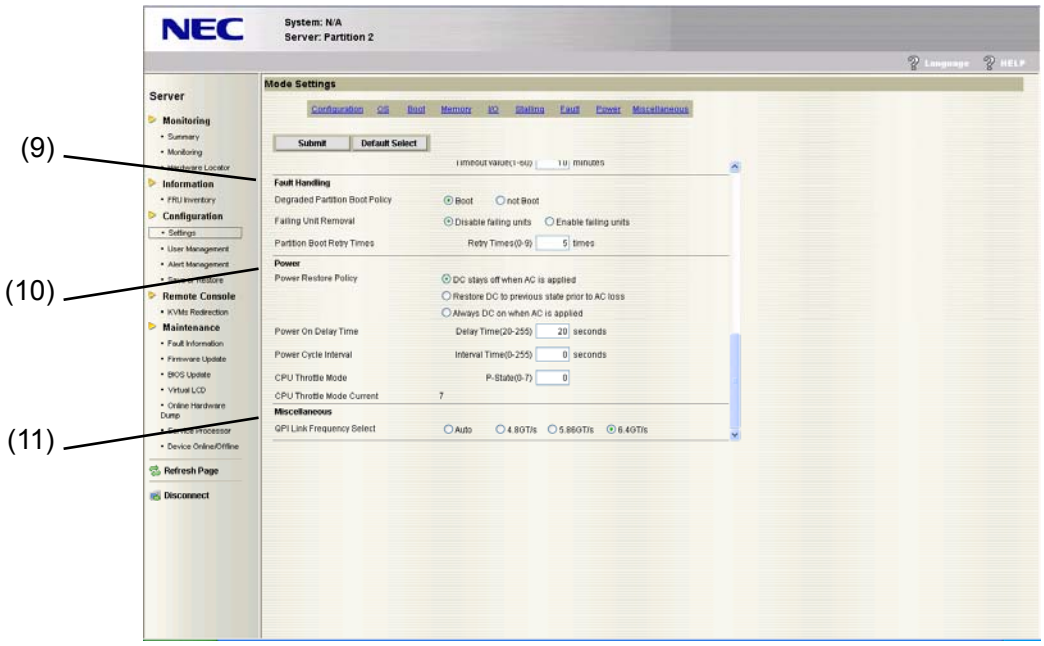
(2) Contact Information
Set/display the following contact information.
- Contact Name
- Contact Phone
- Console Phone
- Remote Phone
- Contact Email
- Department
- Special Handling Instructions

(3) Clicking **"Submit"** enables to set the information of (1) and (2).

2.5.5 Mode Settings

Mode Settings is displayed by selecting **"Settings"** and clicking **"Mode Settings"** of the menu on the left side of the screen.
Various operation settings for the server can be set in **Mode Settings**.





(1) Clicking **"Submit"** enables to set the information of (3) ~ (10).

(2) Clicking **"Default Select"** enables to restore the operation mode to the status before selecting operation.

(3) Configuration
Display/set setting information related to configuration.
Clear SG information of BIOS

(4) OS
Display/set setting information related to OS.
Memory addressing size :
44bit mode
40bit mode

(5) Boot
Display/set setting information related to boot.
EFI Boot-up
Reset policy

(6) Memory
Display/set setting information related to Memory.
Mirroring
Disable : not mirroring
Socket Mirroring : mirroring in each processor
PMM Mirroring : mirroring among different processors
Memory Sparing
Disable/Enable
Memory Interleaving (for among multiple memory controllers or multiple processors)

Disable : not interleaving
Intra : interleaving among memory controllers in each processor
Inter(4way) : interleaving among maximum 4 processors
Inter(Max) : interleaving among full of processors

When using the memory interleaving among multiple processors, the performance may become lower if the NUMA,Non Uniform Memory Access, is set to “enable” on BIOS setup. So, it is recommended that NUMA is set to “disable” on BIOS when using the memory interleaving among multiple processors. Refer to the “Chipset” of “BIOS Setup” section for details on NUMA.

Memory Channel selections
Quad : memory access per each 4 channels
Dual : memory access per each 2 channels
Patrol scrubbing
Disable/Enable

(7) I/O
Display/ set setting information related to I/O.
Wake On LAN

IMPORTANT:
●If the server power on by WOL is tried when this WOL setting is "Disable", then the next try for powering on the server by WOL even after this WOL setting is changed to “Enable” does not work. So please power on the server by a way rather than WOL.

(8) Monitoring Stalling
Display/set setting information related to stall monitoring.
BIOS/POST stall monitoring
OpROM stall monitoring
OS boot stall monitoring
Actions for failure stall monitoring
Shutdown stall monitoring

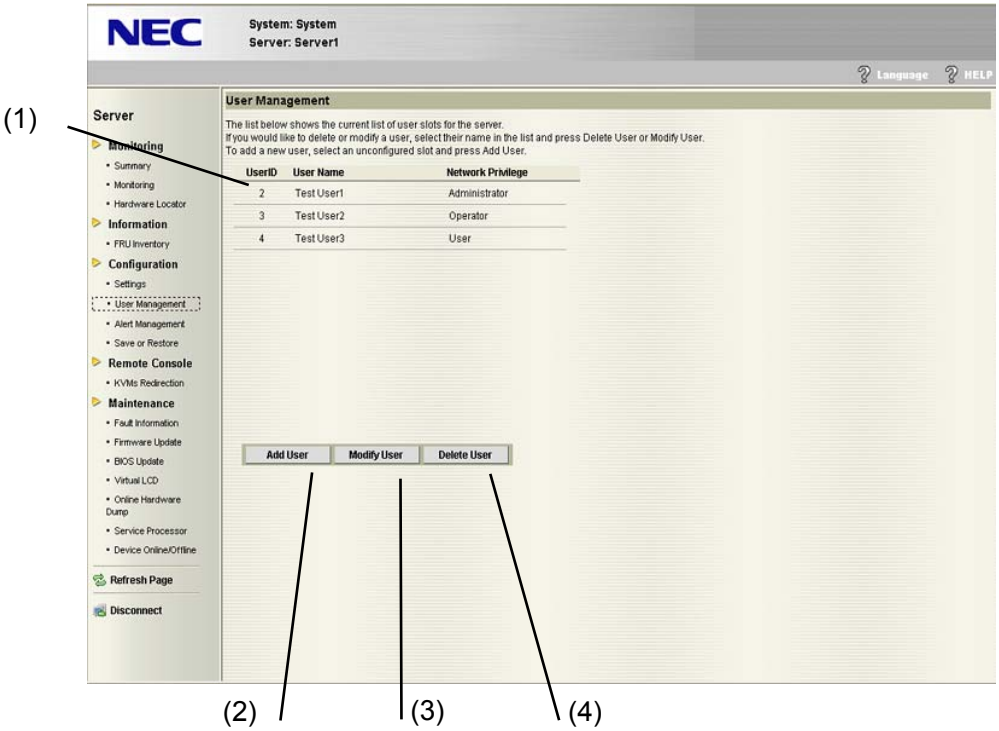
(9) Fault Handling
Display/set setting information related to fault.
Partition boot
Unit cancellation
Partition boot retry count

(10) Power
Display/set setting information related to power.
Power recovery method
Power delay time
Power circulation interval
Power saving mode

(11) Miscellaneous
Display/set other setting information.
QPI frequency

2.6 User Management

User Management is displayed by selecting **"User Management"** from the menu on the left side of the screen.
Add/deletion of user name and password change for logging in to system Web console can be performed in **User Management**.

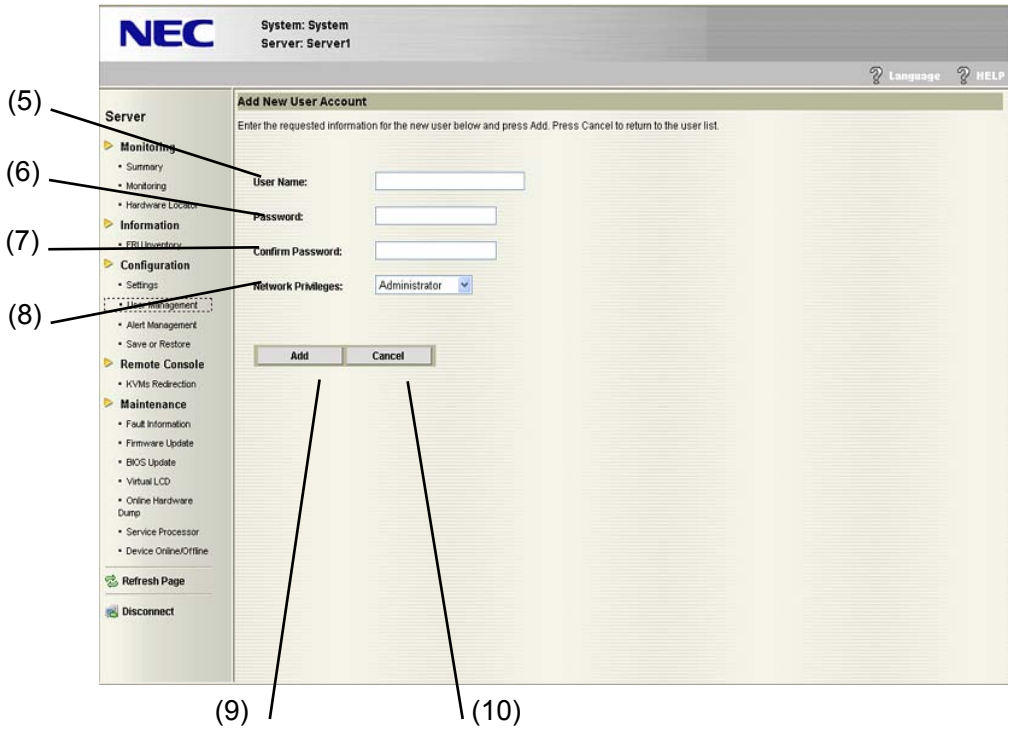


(1) Display user account information in list.
User ID : User ID
User Name : User account
Network Privilege : Permission level

(2) Clicking **"Add User"** enables to move to **Add New User Account** screen.

(3) By selecting one of the users displayed in list and clicking **"Modify User,"** the screen moves to **Modify User Account** screen to modify the selected registered user account.

(4) By selecting one of the users displayed in list and clicking **"Delete User,"** the selected registered user is deleted.



Register new user account information.

(5) “User Name”

Enter new user name.

Up to 16 characters of one-bye alphanumeric characters and “_”, “-” of ASCII character code can be entered for user name.

(6) “Password”

Enter password.

Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for password.

(7) “Confirm Password”

Enter password for confirmation.

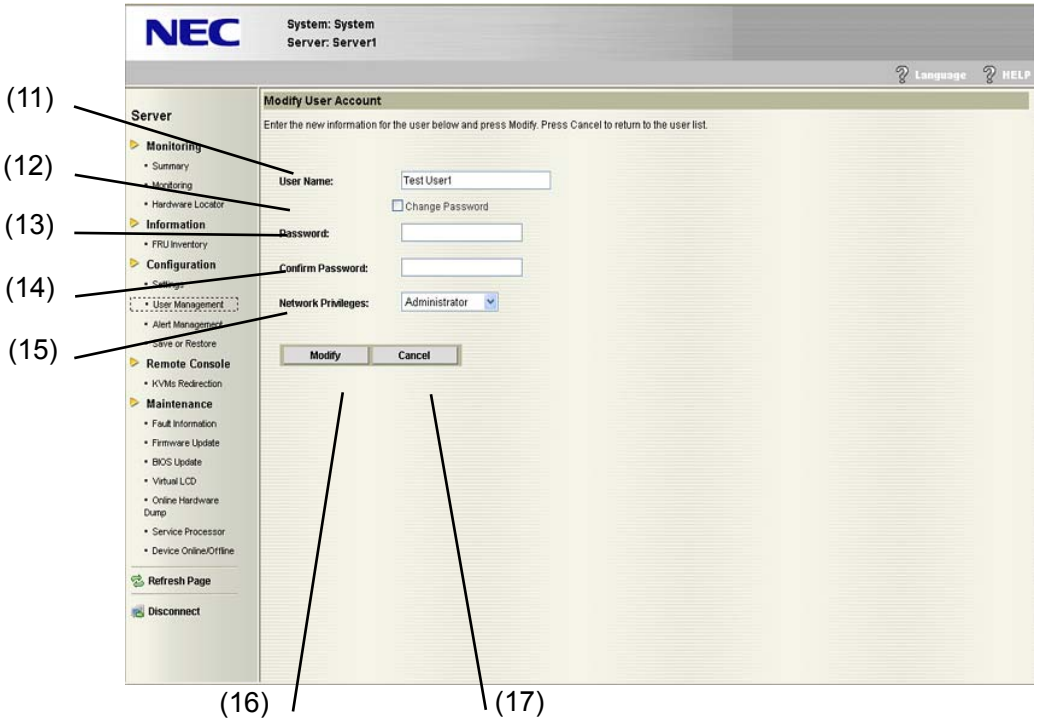
Up to 20 characters of one-byte alphanumeric characters can be entered for confirmation password, which must be the same as (6).

(8) “Network Privileges”

Select the privilege level (Administrator, Operator, or User) to be assigned to user account.

(9) Clicking **"Add"** enables to set the information of (5) ~ (8). The screen moves to the initial screen of User Management after setting is completed.

(10) Clicking **"Cancel"** enables to move to the initial screen of User Management.



Change user account information.

(11) "User Name"
Display/change user name.

(12) Selecting **"Change Password"** enables to enter password.

(13) "Password"
Enter password.
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for password.

(14) "Confirm Password"
Enter password for confirmation.
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for confirmation password, which must be the same as (13).

(15) Select privilege level (Administrator, Operator, or User) to be assigned to user account in **"Network Privileges."**

(16) Clicking **"Modify"** enables to set the information of (11) and (13) ~ (15), and move to the initial screen of User Management.

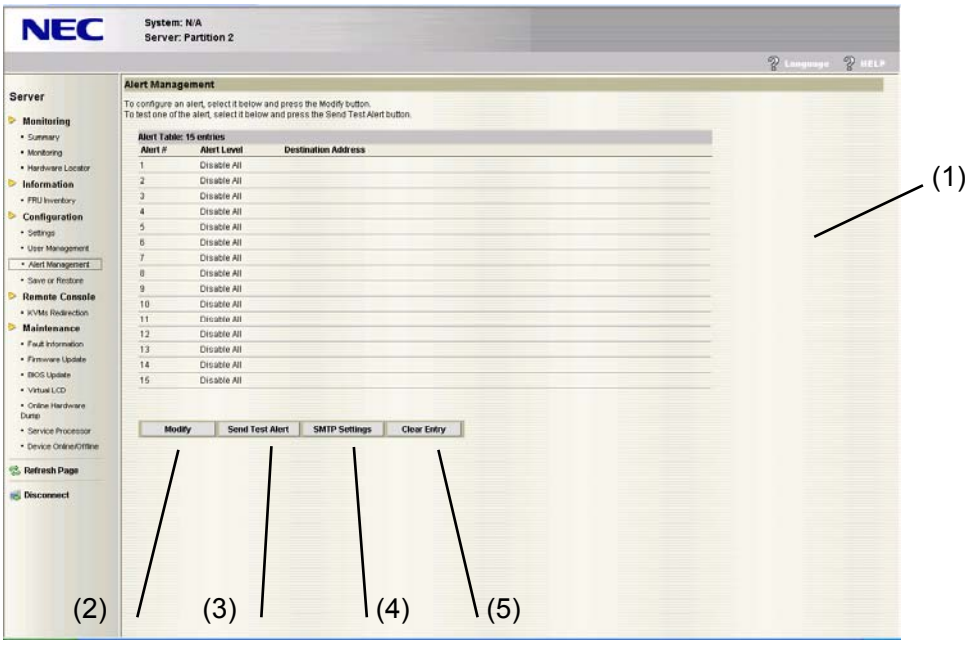
(17) Clicking **"Cancel"** enables to move to the initial screen of User Management.

Web console supports the following user accounts and passwords by default.

User Name	Privilege Level	Default password	Note
MWA	Adiministrator	superuser	This account is only for the system management software. This account is impossible to delete, but this password is possible to modify.
root	Adiministrator	superuser	This is a root account. This account is possible to delete, and this password is also possible to modify.
Administrator	Adiministrator	Administrator	This is an Administrator account. This account is impossible to delete, and this password is possible to modify.

2.7 Alert Management

Alert Management is displayed by selecting **"Alert Management"** from the menu on the left side of the screen.
Warning can be notified to the specified management PC when event occurs in the server. There are two types of notification methods, SNMP Trap and Email in **Alert Management.**



(1) Display alert information.

Alert #	: Alert ID
Alert Level	: Alert level
Destination Address	: Destination address

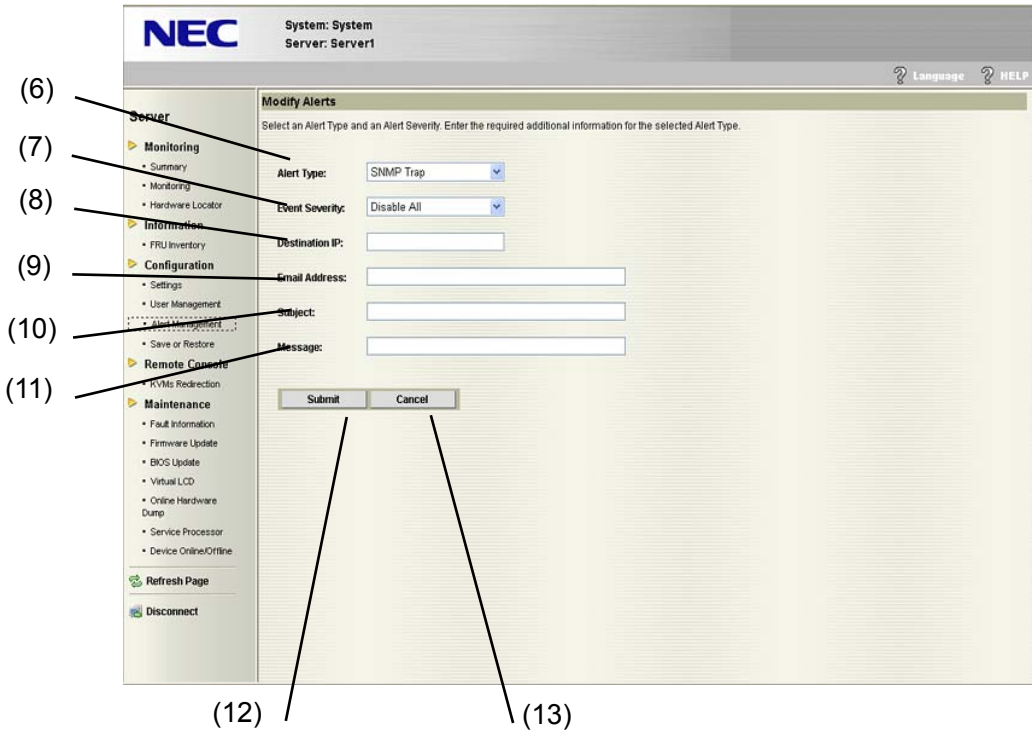
(2) By selecting one of the information displayed in list in (1) and clicking **"Modify,"** the screen moves to alert information setting screen to register or modify the selected alert information.

(3) By selecting one of the alert information displayed in list in (1) and clicking **"Send Test Alert,"** test notification is performed according to the selected alert information.

IMPORTANT:
Click "Send Test Alert" after completing all the "Alert Management" settings.

(4) Clicking **"SMTP Settings"** enables to move to **SMTP Server Address** screen.

(5) By selecting 1 of the information displayed in list in (1) and clicking **"Clear Entry,"** the selected alert information is deleted.



Set alert information.

(6) Select alert type in **"Alert Type."**
Selection Options
- SNMP Trap
- Email

(7) Select alert level in **"Event Severity."**
Selection Options
- Disable All
- Information
- Warning
- Critical
- Non-recoverable

IMPORTANT:
No alart for "Non-recoverable" will be reported because it is not defined.

(8) Set IP address in **"Destination IP."**
IP address can be set when alert type is SNMP Trap.

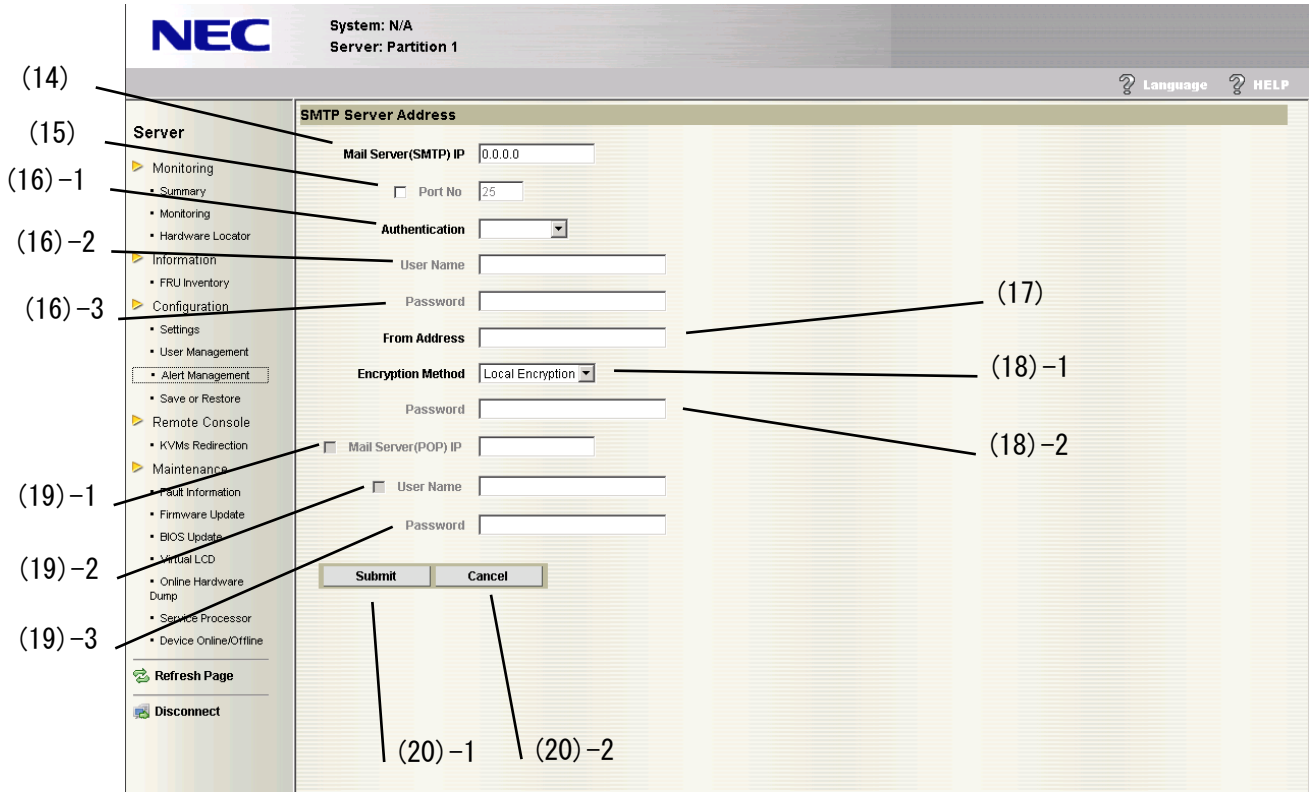
(9) Set Email address in **"Email Address."**
Email address can be changed when alert type is Email.
Up to 64 characters of one-bye alphanumeric characters and "_", "-", "." and "@" of ASCII character code can be entered for Email address.

(10) Set subject in **"Subject."**
Subject can be changed when alert type is Email. 64 of alphabets and numbers and space can be used.

(11) Set message in **"Message."**
Message can be changed when alert type is Email. 64 of alphabets and numbers and space can be used.

(12) Clicking **"Submit"** sets the information of (6) ~ (11) and the screen moves to the initial screen of Alert Management.

(13) Clicking **"Cancel"** enables to move to the initial screen of Alert Management.



Set IP address of SMTP server.

(14) IP address of send mail server can be displayed/changed in **"Mail Server (SMTP)IP."**

(15) Selecting the checkbox for **"Port No"** enables to set the port number of send mail server.

(16) Selecting the checkbox for **"User Name"** enables to set login name, password and authentication method for sendmail server.

(16)-1 Select authentication method in **"Authentication."**
Selection Options
None
PLAIN
LOGIN
CRAM-MD5

(16)-2 "User Name"
Up to 16 characters of one-byte alphanumeric characters and "_", "-" of ASCII character code can be entered for user name.

(16)-3 "Password"
Up to 20 characters of one-byte alphanumeric characters and symbols can be entered for password.

(17) Set the sender address to "From Address"
one-byte alphanumeric characters and "_","-"," . ","@" are available.

(18) Set encryption method for Email contents.

(18)-1 Select encryption method from **"Encryption Method."**
Selection Options
Local Encryption
AES Encryption

(18)-2 "Password"
Enter password in 8 or more or 20 or less one-byte alphanumeric characters and symbols when AES Encryption is selected in (18)-1.

(19)-1 "Mail Server (POP)IP"
This function is unavailable.

(19)-2 "User Name"
This function is unavailable.

(19)-3 "Password"
This function is unavailable.

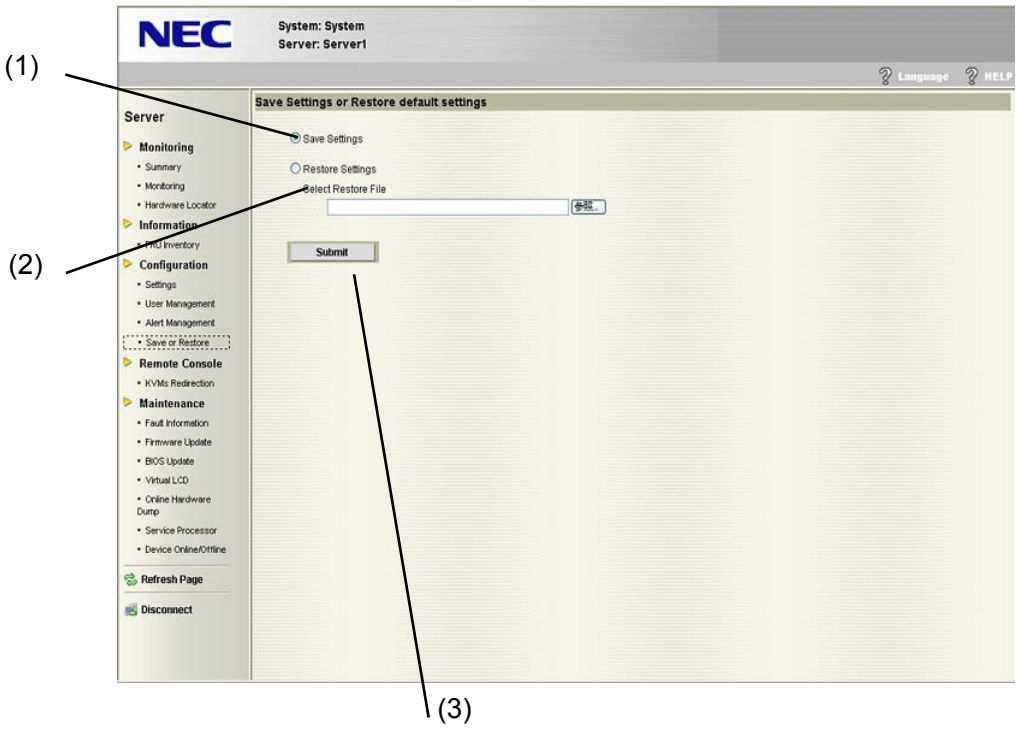
(20)-1 Clicking **"Submit"** enables to set the information of (14) ~ (19) and move to the initial screen of Alert Management.

(20)-2 Clicking **"Cancel"** enables to move to the initial screen of Alert Management.

IMPORTANT:
The alert mail might not be able to be used depending on the settings of the network and the SMTP server.

2.8 Save or Restore

Save or Restore is displayed by selecting **"Save or Restore"** from the menu on the left side of the screen.
Save or restore of SG information related to the server is performed in **Save or Restore**.



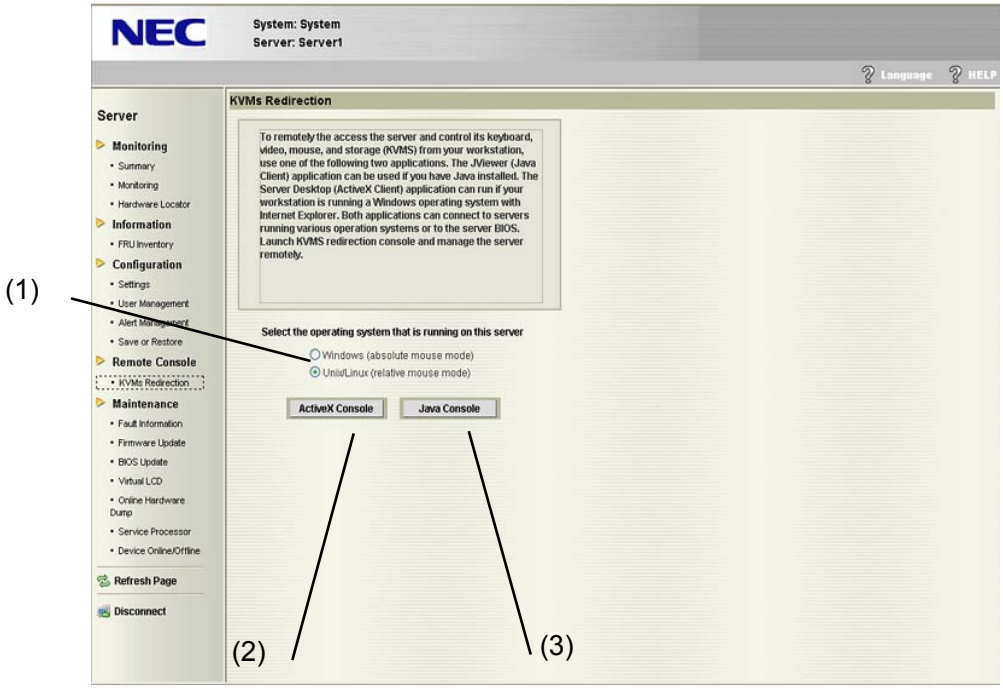
(1) Selecting **"Save Settings"** enables to save SG information.

(2) Selecting **"Restore Settings"** enables to set SG information in the restore file inside the management PC.

(3) Clicking **"Submit"** enables to execute (1) or (2).

2.9 KVMs Redirection

KVMs Redirection is displayed by selecting **"KVMs Redirection"** from the menu on the left side of the screen.
Display, keyboard and mouse of management PC are connected to server via network to be used as server console in **KVMs Redirection.**



(1) Select mouse mode.
Selection Options

Windows : Specify Windows for mouse mode.
UnixLinux : Specify UnixLinux for mouse mode.

IMPORTANT:

- **If the Host OS is Windows, please set "Windows (absolute mouse mode)". If the Host OS is Linux, please set "Unix / Linux (relative mouse mode)".**
  If the mouse mode is incorrect, the mouse does not work well.
- **If the mouse does not work well during Relative mouse mode, try to move the mouse out of the window ot KVM client software.**
- **In case of changing mouse mode when starting KVM consoles, management firmware reset is required.**
  Refer to "Management Firmware Reset" when resetting.
- **Mouse cannot be used in WebBIOS. Use keyboard instead.**
- **It is able to mount the CD/DVD-ROM Drive , Floppy Drive, ISO image file and Floppy image file by the "Remote Media"**
  ISO9660 format for ISO image is supported but UDF format is not.
- **2 or less KVMs Redirection windows are able to be open.**
  However only one media for a server is mountable.

(2) Select **"ActiveX Console"** to start ActiveX console.Without installing special software on the management PC, it is possible to use the KVM redirection function.

IMPORTANT:

- **ActiveX Console can be used only with Internet Explorer.**
- **Before starting ActiveX Console, set Internet Explorer (7.0 or later) as follows.**
  Select [Internet Option]-> [Security tab] ->[Custom Level].
  - Dialog is displayed automatically for ActiveX controls: Enable
  - Download unsigned ActiveX controls: Display the dialog
- **When security warning appears at starting ActiveX Console, select [Yes] or [OK].**
- **When using Explorer 6.x, it is needed to install "Microsoft Visual C++ 2008 Redistributable Package(x86) which is able to be downloaded from the site of Microsoft Download Center (http://www.microsoft.com/downloads/en/default.aspx)**
- **If IE is terminated, the ActiveX console will also be terminated since the console works as the part of the IE process.**
- **Once started, ActiveX Console is stored in the cache of PC and is executed from the cache the next time at starting. Clear cache to remove the ActiveX consoles which were installed in the past completely by the procedure described below.**
  - **Open "%SystemRoot%¥Downloaded Program Files" with explorer and delete "M300V KVM Viewer" from the property which appears by right-clicking.**
  - **Open command prompt,execute cmd.exe, and move to C:¥WINDOWS¥Downloaded Program Files¥, and delete AVCView.dll if it exists.**

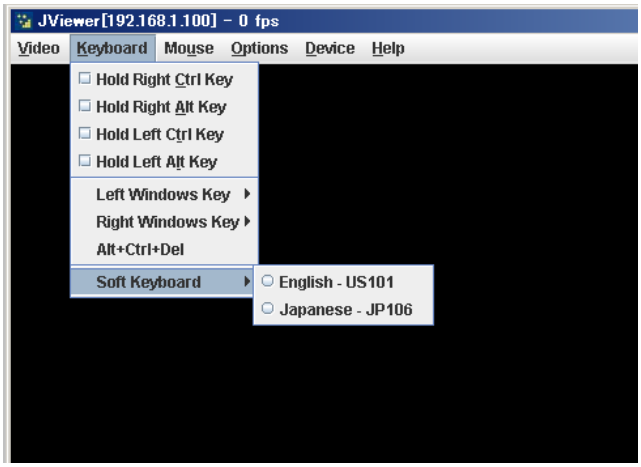
```
C:¥WINDOWS¥Downloaded Program Files>del AVCView.dll
```

(3) Select **"Java Console"** to start Java console.If installing special software,Java VM.it will be possible to use KVM redirection function with the browser rather than IE, such as FireFox.

IMPORTANT:

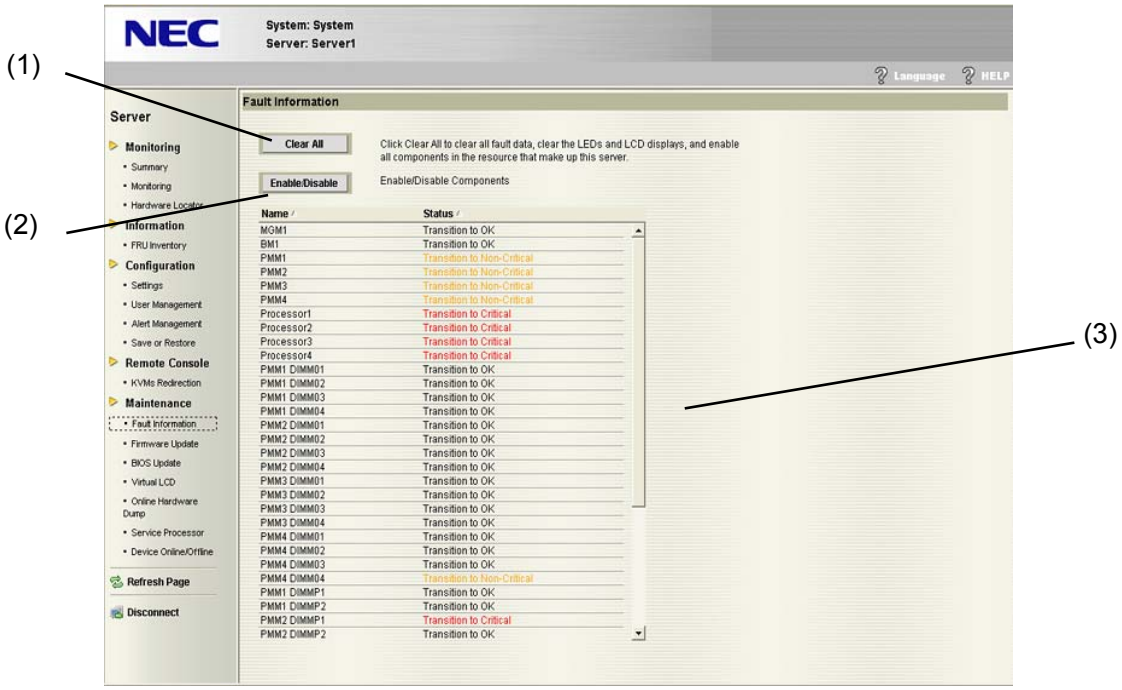
- **JavaVM needs to be installed to start Java Console. Install Oracle(Sun Microsystems) Java JRE6.0 or later.**
- **It may take times for the first boot and fail the connection. If it occurred, start Java Console again.**
- **Setting needs to be changed in accordance with the keyboard in Java Console. After starting Java Console, go to [Keyboard]-> [Soft Keyboard] from the window menu and select [US101] (English Keyboard Layout) or [JP106](Japanese Keyboard Layout). It is set in the US101 key layout at starting (see the below image).**
- **The dialog "Digital signature cannot be verified. Do you want to continue?" appears when starting Java Console. Select "Continue".**
- **Once started, Java Console is stored in the cache of PC and is executed from the cache the next time at starting. To clear cache, go to [Control Panel] ->[Java] -> [Basic] tab ->[Temporary Internet Files].**
- **Since Java Console works as a process independent from the browser, Java Console is still usable even if the browser is terminated.**
- **If two Java Console are started on IE8,**
  don't set anything for the trusted site for [Internet option]->[Security]
  set IP address of Server Web console for [Internet option]->[Local Intranet]

Screen for changing keyboard layout in Java Console



2.10 Fault Information

Fault Information is displayed by selecting **"Fault Information"** from the left side of the screen. Fault information of hardware unit is displayed in **Fault Information.**



(1) Clicking **"Clear All"** enables to delete Fault sensor in a batch.

IMPORTANT:
- **When one of the server in the system is powered on, you can not execute this.**
  Please make sure all the server in the system are powered off before executing this.

(2) Clicking **"Enable/Disable"** enables to move to **Enable/Disable Component** screen.

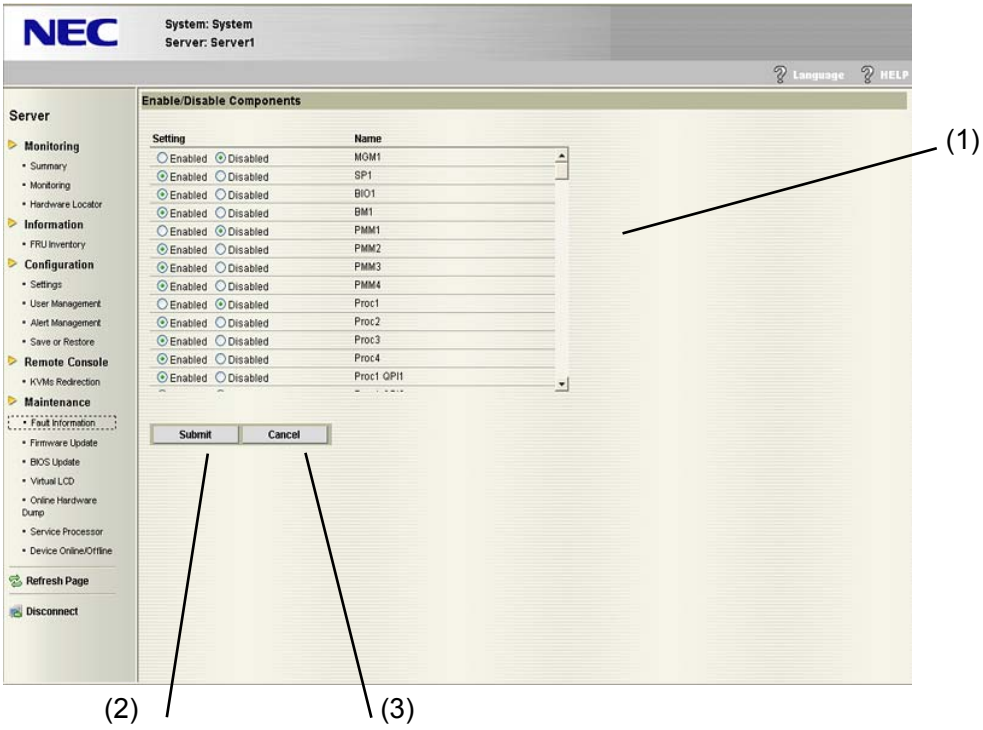
(3) Display Fault sensor information.

Name : Fault sensor status
Status : Status

IMPORTANT:
- When a pair of DIMMs are not configured in the PAIR, the fault sensor information such as "Name : PMMx DIMMpy (x=1-8), y=1-8)" for the PAIR will not be displayed.

2.10.1 Enable/Disable Component

Enable/Disable Component is displayed by selecting **"Fault Information"** and clicking **"Enable/Disable"** of the menu on the left side of the screen.
Hardware unit status (Enable/Disable) can be checked and Enable/Disable setting can be performed manually in **Enable/Disable Component**.



(1) Display/set Enable/Disable status.
Displayed contents are as follows.

Setting	: Enable/Disable status
Name	: Disable sensor name

(2) Clicking **"Submit"** enables to set the information of (1).

(3) Clicking **"Cancel"** enables to move to **Fault Information** screen.

IMPORTANT:
- **When non-redundant hardware unit is set to Disable, server cannot be booted.**
- **When hardware unit which was previously "Disabled" is set to "Enable" at the time of failure occurrence, the phenomenon may reoccur to the unit although it may temporarily recover.**

IMPORTANT:

- **When using A1080a-S/D model, a pair of DIMMs is defined as a PAIR and the status of each sensor for the PAIRs will be displayed. If one or more DIMMs in the DIMM PAIR are not configured, the status,Enabled/Disabled, of the sensor can not be changed**
- **When using A1080a-E model, a set of 4 DIMMs is defined as a QUARTET and the status of each sensor for the QUARTET will be displayed. If one or more DIMMs in the DIMM QUARTET are not configured, the status,Enabled/Disabled, of the sensor can not be changed.**

Enabled/Disabled status of DIMM sensor in A1080a-S/D Model

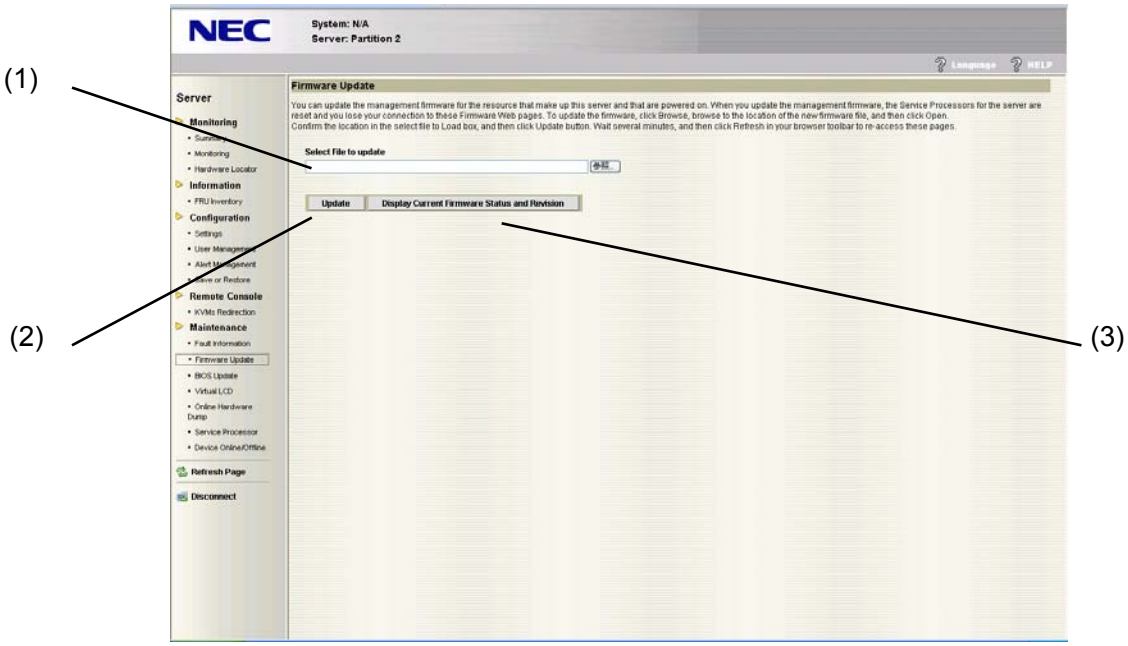
Setting		Name
Enabled	Disabled	Proc1
Enabled	Disabled	PMM1 DIMM01/02
Enabled	Disabled	PMM1 DIMM03/04
Enabled	Disabled	PCIeSlot04
Enabled	Disabled	Proc2
Enabled	Disabled	PMM8 DIMM01/02
Enabled	Disabled	PMM8 DIMM03/04
Enabled	Disabled	PCIeSlot05

Enabled/Disabled status of DIMM sensor in A1080a-E Model

Setting		Name
Enabled	Disabled	Proc1
Enabled	Disabled	PMM1 DIMM01/02/03/04
Enabled	Disabled	PMM1 DIMM05/06/07/08
Enabled	Disabled	PMM1 DIMM09/10/11/12
Enabled	Disabled	PMM1 DIMM13/14/15/16
Enabled	Disabled	PCIeSlot04
Enabled	Disabled	Proc2
Enabled	Disabled	PMM8 DIMM01/02/03/04
Enabled	Disabled	PMM8 DIMM05/06/07/08
Enabled	Disabled	PCIeSlot05

2.11 Firmware Update

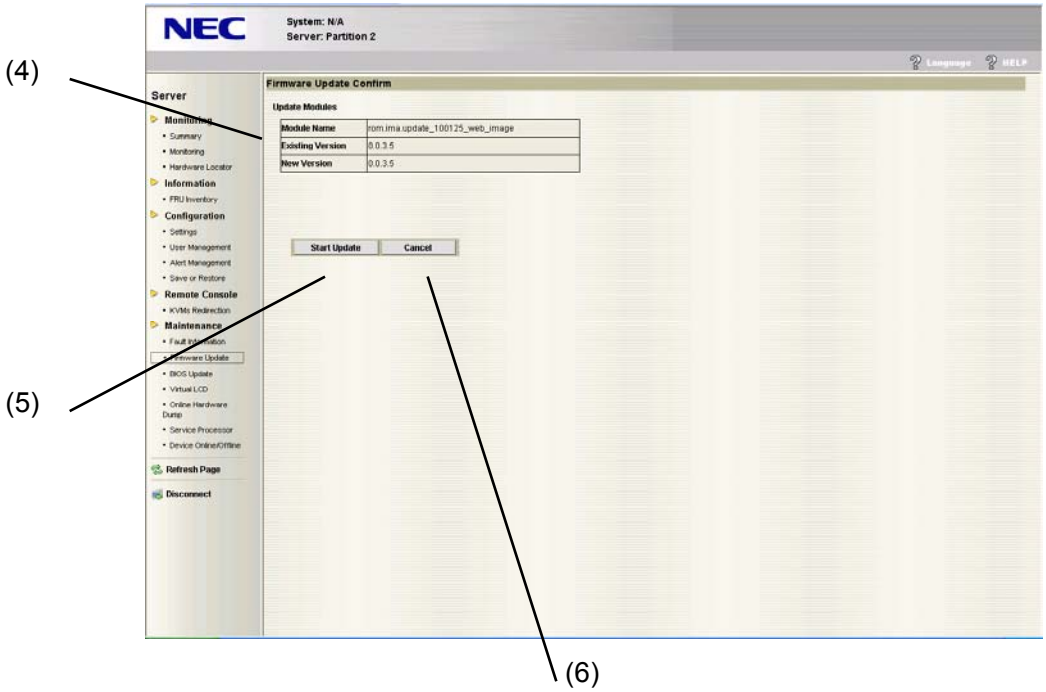
Firmware Update is displayed by selecting **"Firmware Update"** from the menu on the left side of the screen.
Management Firmware is updated in **Firmware Update**.



(1) Specify the file of Management Firmware to be updated in **"Select File to update."**

(2) Clicking **"Update"** enables to forward the file of Management Firmware to system Web server and the screen moves to **Firmware Update Confirm** screen.

(3) Clicking **"Display Current Firmware Status and Revision"** enables to display update result of Management Firmware and Management Firmware version in dialog.

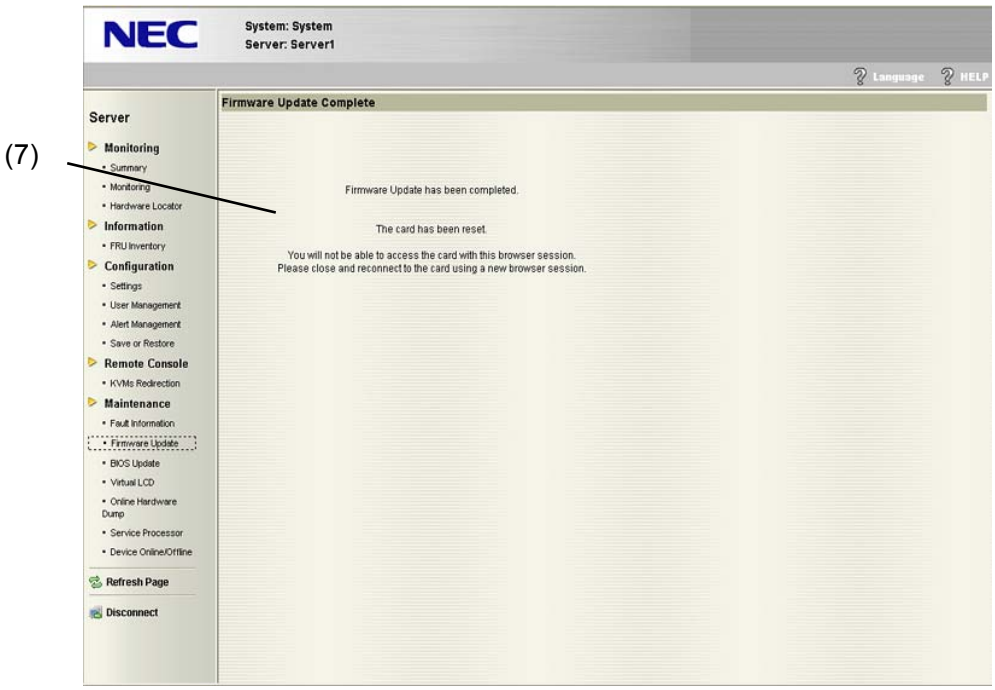


Management Firmware information to be updated and the list of existing information is displayed. Management Firmware of all the SPs in the server is updated.

(4) Display Management Firmware information to be updated.
Module Name : File name
Existing Version : Existing version
New Version : Version to be updated

(5) Clicking **"Start Update"** enables to display confirmation message for execution. Updated is started by clicking **"OK."**

(6) Clicking **"Cancel"** enables to move to **Firmware Update** screen.



(7) Indicate the completion of update.

IMPORTANT:
When using A1080a-D, the Management Firmware for both servers must be the same version.

IMPORTANT:

●Don't update and reboot Management Firmware until the OS boot is finished after starting power on.

●Don't update and reboot Management Firmware until the power off is finished after starting OS shutdown.

●When using A1080a-D, don't update and reboot Managemnet Firmware until the OS boot is finished after starting power on even if the OS boot is being executed on the other server.

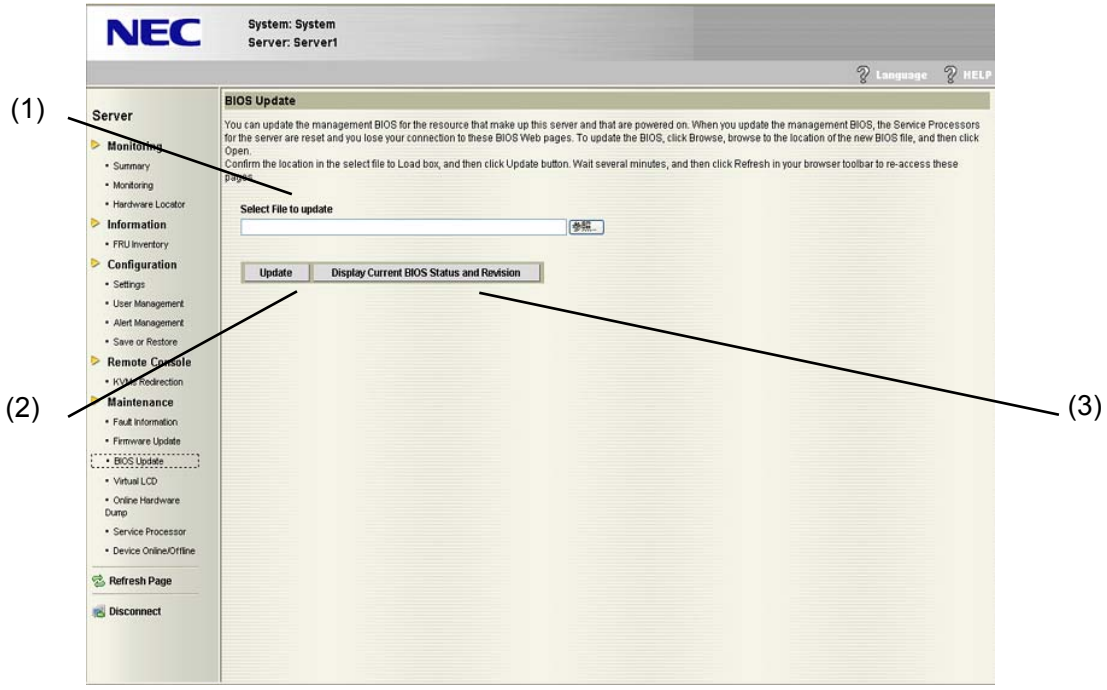
●When using A1080a-D, don't update and reboot Managemnet Firmware until the power off is finished after starting OS shutdown even if the power off is being executed on the other server.

If OS boot is finished, then the "Server Health" on Web console/ Monitoring/Summary will be "OS running/EFI Manager Booted".

If the power off is finished, then the "Server Health" on Web console/Monitoring/Summary will be "Stopped".

2.12 BIOS Update

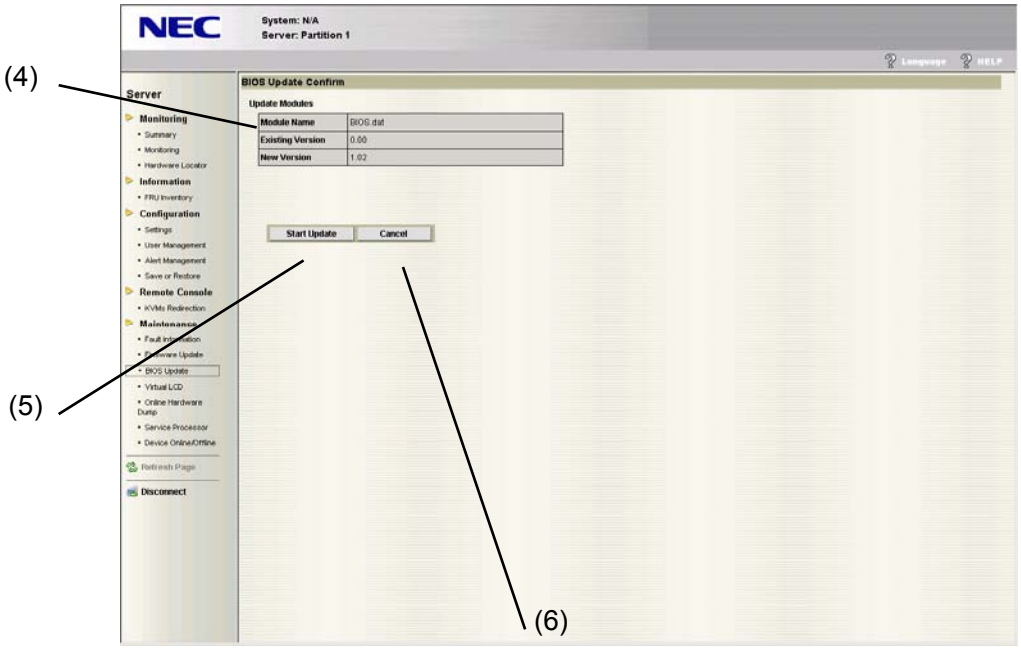
BIOS Update is displayed by selecting **"BIOS Update"** from the menu on the left side of the screen.
BIOS is updated in **BIOS Update**.



(1) Specify BIOS file to be updated in **"Select File to update."**

(2) Clicking **"Update"** enables to transfer BIOS file to system Web server and move to **BIOS Update Confirm** screen.

(3) Clicking **"Display Current BIOS Status and Revision"** enables to display update result of BIOS and BIOS version.



BIOS information to be updated and the list of existing BIOS information is displayed. BIOS is updated for ROM inside the server.

(4) Display BIOS information to be updated.
Module Name : File name
Existing Version : Existing BIOS version
New Version : BIOS version to be updated

(5) Clicking **"Start Update"** enables to display confirmation message for execution. BIOS update is started by clicking **"OK."**

(6) Clicking **"Cancel"** enables to move to **BIOS Update** screen.

IMPORTANT:
When using A1080a-D, the BIOS for both servers must be the same version.

IMPORTANT:

●Don't update BIOS until the OS boot is finished after starting power on.

●Don't update BIOS until the power off is finished after starting OS shutdown.

●When using A1080a-D, don't update BIOS until the OS boot is finished after starting power on even if the OS boot is being executed on the other server.

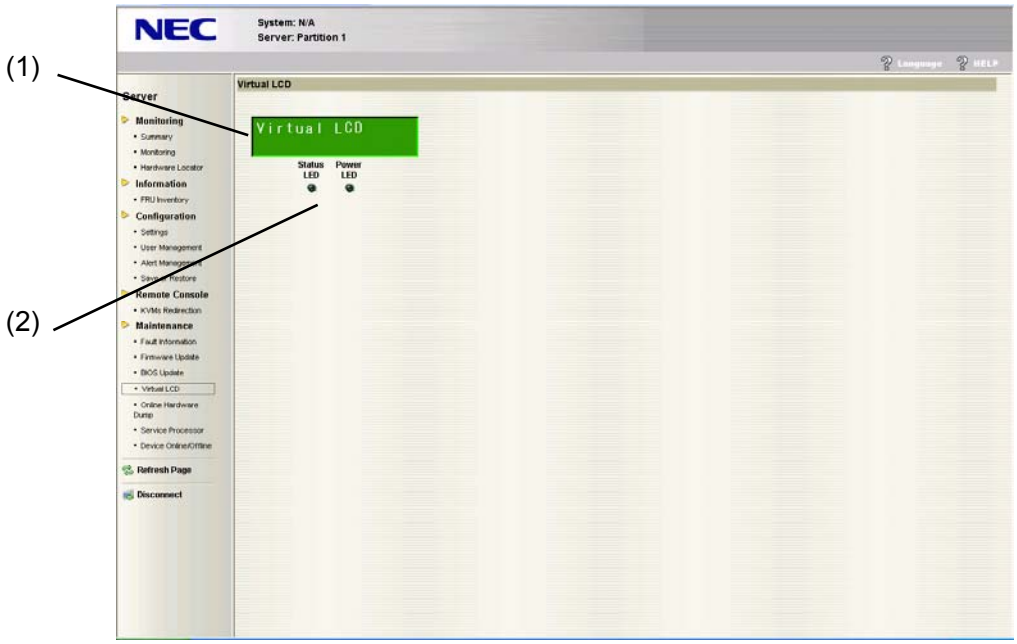
●When using A1080a-D, don't update BIOS until the power off is finished after starting OS shutdown even if the power off is being executed on the other server.

If OS boot is finished, then the "Server Health" on Web console/ Monitoring/Summary will be "OS running/EFI Manager Booted".

If the power off is finished, then the "Server Health" on Web console/Monitoring/Summary will be "Stopped".

2.13 Virtual LCD

Virtual LCD is displayed by selecting **"Virtual LCD"** from the menu on the left side of the screen. LCD and LED information in the server is displayed in **Virtual LCD**.



(1) Show displayed contents of virtual LCD.

(2) Show displayed contents of virtual LED.
Status
Power

2.13.1 Virtial LCD Information

This menu displays the latest failure information of the server.

Display Example 1 (threshold value of the sensor)

(1) (2) (3)
MG1 1.8Vs Alm 02

(1) MG1 : The name of the parts which occurred a faulire.
MG = Management module (MGM)
PM = Processor Memory module(PMM)

(2) 1.8Vs: The power level which caused the failure. (or the temperature)
(3) 02 : The levels of the failure.
09 : Upper Critical

07 : Upper Non-Critical
02 : Lower Critical

Display Example 2 (status of the sensor)

LCD String	Event
Pwr NoRdn	Redundancy Lost
Pwr RdnDeg	Redundancy Degrade
Pwr Insuff	Non-Redundant: Insufficient Resource
WDT Timeout	Timer expired, status only
WDT HardReset	Hard Reset
WDT Power Down	Power Down
WDT Power Cycle	Power Cycle
WDT Timeout	Timer Interrupt
DUMP Request!	Front Panel NMI
Bus Uncorr	Bus Uncorrectable Error
SMI Timeout	State Asserted
Mem Uncor Err	Uncorrectable ECC memory error
Mem Scrub Fail	Memory Scrub Failed
Mem Corr Err	Correctable ECC/ other correctable memory error logging limit detected
Mem Config Err	Configuration Error
WDT2 Timeout	Timer expired, status only
WDT2 HardReset	Hard Reset
WDT2 Power Down	Power Down
WDT2 Power Cyc	Power Cycle
WDT2 Timeout	Timer Interrupt
MG1 Sens Fail	Not Acknowledged
MG1 Sens Fail	Device Error Detected
MG1 Sens Fail	Timeout
MG1 Non-Crit	transition to Non-Critical from OK
MG1 Critical	transition to Critical from less severe
MG1 Sens Fail	Not Acknowledged
MG1 Sens Fail	Device Error Detected
MG1 Sens Fail	Timeout
MG1 Non-Crit	transition to Non-Critical from OK
MG1 Critical	transition to Critical from less severe

LCD String	Event
PM1 VRTemp Alm	Limit Exceed
PM2 VRTemp Alm	Limit Exceed
PM3 VRTemp Alm	Limit Exceed
PM4 VRTemp Alm	Limit Exceed

P1 Temp Alm	transition to Non-Critical from OK
P2 Temp Alm	transition to Non-Critical from OK
P3 Temp Alm	transition to Non-Critical from OK
P4 Temp Alm	transition to Non-Critical from OK
IOH1 Temp Alm	transition to Non-Critical from OK
IOH1 Temp Alm	transition to Critical from less severe
IOH2 Temp Alm	transition to Non-Critical from OK
IOH2 Temp Alm	transition to Critical from less severe
Proc1 IERR	IERR
Proc1 ThermTrip	Thermal Trip
Proc1 Confg Err	Configuration Error
Proc2 IERR	IERR
Proc2 ThermTrip	Thermal Trip
Proc2 Confg Err	Configuration Error
Proc3 IERR	IERR
Proc3 ThermTrip	Thermal Trip
Proc3 Confg Err	Configuration Error
Proc4 IERR	IERR
Proc4 ThermTrip	Thermal Trip
Proc4 Confg Err	Configuration Error
PM1 DIMMP1 UErr	Fault Status asserted
PM1 DIMMP2 UErr	Fault Status asserted
PM1 DIMMP3 UErr	Fault Status asserted
PM1 DIMMP4 UErr	Fault Status asserted
PM1 DIMMP5 UErr	Fault Status asserted
PM1 DIMMP6 UErr	Fault Status asserted
PM1 DIMMP7 UErr	Fault Status asserted
PM1 DIMMP8 UErr	Fault Status asserted
PM2 DIMMP1 UErr	Fault Status asserted
PM2 DIMMP2 UErr	Fault Status asserted
PM2 DIMMP3 UErr	Fault Status asserted
PM2 DIMMP4 UErr	Fault Status asserted
PM2 DIMMP5 UErr	Fault Status asserted
PM2 DIMMP6 UErr	Fault Status asserted
PM2 DIMMP7 UErr	Fault Status asserted
PM2 DIMMP8 UErr	Fault Status asserted
PM3 DIMMP1 UErr	Fault Status asserted
PM3 DIMMP2 UErr	Fault Status asserted
PM3 DIMMP3 UErr	Fault Status asserted
PM3 DIMMP4 UErr	Fault Status asserted
PM3 DIMMP5 UErr	Fault Status asserted
LCD String	Event
PM3 DIMMP6 UErr	Fault Status asserted
PM3 DIMMP7 UErr	Fault Status asserted
PM3 DIMMP8 UErr	Fault Status asserted
PM4 DIMMP1 UErr	Fault Status asserted

PM4 DIMMP2 UErr	Fault Status asserted
PM4 DIMMP3 UErr	Fault Status asserted
PM4 DIMMP4 UErr	Fault Status asserted
PM4 DIMMP5 UErr	Fault Status asserted
PM4 DIMMP6 UErr	Fault Status asserted
PM4 DIMMP7 UErr	Fault Status asserted
PM4 DIMMP8 UErr	Fault Status asserted
PCIe Slot1 Err	Fault Status asserted
PCIe Slot2 Err	Fault Status asserted
PCIe Slot3 Err	Fault Status asserted
PCIe Slot4 Err	Fault Status asserted
PCIe Slot5 Err	Fault Status asserted
PCIe Slot6 Err	Fault Status asserted
PCIe Slot7 Err	Fault Status asserted
SensorFail	Not Acknowledged
SensorFail	Device Error Detected
SensorFail	Timeout
HDD 0 Fault	Drive Fault
HDD 1 Fault	Drive Fault
HDD 2 Fault	Drive Fault
HDD 3 Fault	Drive Fault
HDD 4 Fault	Drive Fault
HDD 5 Fault	Drive Fault
PM1 Non-Crit	transition to Non-Critical from OK
PM1 Critical	transition to Critical from less severe
PM2 Non-Crit	transition to Non-Critical from OK
PM2 Critical	transition to Critical from less severe
PM3 Non-Crit	transition to Non-Critical from OK
PM3 Critical	transition to Critical from less severe
PM4 Non-Crit	transition to Non-Critical from OK
PM4 Critical	transition to Critical from less severe
BM1 Non-Crit	transition to Non-Critical from OK
BM1 Critical	transition to Critical from less severe
PM5 VRTemp Alm	Limit Exceed
PM6 VRTemp Alm	Limit Exceed
PM7 VRTemp Alm	Limit Exceed
PM8 VRTemp Alm	Limit Exceed
P5 Temp Alm	transition to Non-Critical from OK
P6 Temp Alm	transition to Non-Critical from OK
P7 Temp Alm	transition to Non-Critical from OK
P8 Temp Alm	transition to Non-Critical from OK
LCD String	Event
IOH3 Temp Alm	transition to Non-Critical from OK
IOH3 Temp Alm	transition to Critical from less severe
IOH4 Temp Alm	transition to Non-Critical from OK
IOH4 Temp Alm	transition to Critical from less severe

Proc5 IERR	IERR
Proc5 ThermTrip	Thermal Trip
Proc5 Confg Err	Configuration Error
Proc6 IERR	IERR
Proc6 ThermTrip	Thermal Trip
Proc6 Confg Err	Configuration Error
Proc7 IERR	IERR
Proc7 ThermTrip	Thermal Trip
Proc7 Confg Err	Configuration Error
Proc8 IERR	IERR
Proc8 ThermTrip	Thermal Trip
Proc8 Confg Err	Configuration Error
PM5 DIMMP1 UErr	Fault Status asserted
PM5 DIMMP2 UErr	Fault Status asserted
PM5 DIMMP3 UErr	Fault Status asserted
PM5 DIMMP4 UErr	Fault Status asserted
PM5 DIMMP5 UErr	Fault Status asserted
PM5 DIMMP6 UErr	Fault Status asserted
PM5 DIMMP7 UErr	Fault Status asserted
PM5 DIMMP8 UErr	Fault Status asserted
PM6 DIMMP1 UErr	Fault Status asserted
PM6 DIMMP2 UErr	Fault Status asserted
PM6 DIMMP3 UErr	Fault Status asserted
PM6 DIMMP4 UErr	Fault Status asserted
PM6 DIMMP5 UErr	Fault Status asserted
PM6 DIMMP6 UErr	Fault Status asserted
PM6 DIMMP7 UErr	Fault Status asserted
PM6 DIMMP8 UErr	Fault Status asserted
PM7 DIMMP1 UErr	Fault Status asserted
PM7 DIMMP2 UErr	Fault Status asserted
PM7 DIMMP3 UErr	Fault Status asserted
PM7 DIMMP4 UErr	Fault Status asserted
PM7 DIMMP5 UErr	Fault Status asserted
PM7 DIMMP6 UErr	Fault Status asserted
PM7 DIMMP7 UErr	Fault Status asserted
PM7 DIMMP8 UErr	Fault Status asserted
PM8 DIMMP1 UErr	Fault Status asserted
PM8 DIMMP2 UErr	Fault Status asserted
PM8 DIMMP3 UErr	Fault Status asserted
PM8 DIMMP4 UErr	Fault Status asserted
PM8 DIMMP5 UErr	Fault Status asserted
LCD String	Event
IOH3 Temp Alm	transition to Non-Critical from OK
IOH3 Temp Alm	transition to Critical from less severe
IOH4 Temp Alm	transition to Non-Critical from OK
IOH4 Temp Alm	transition to Critical from less severe

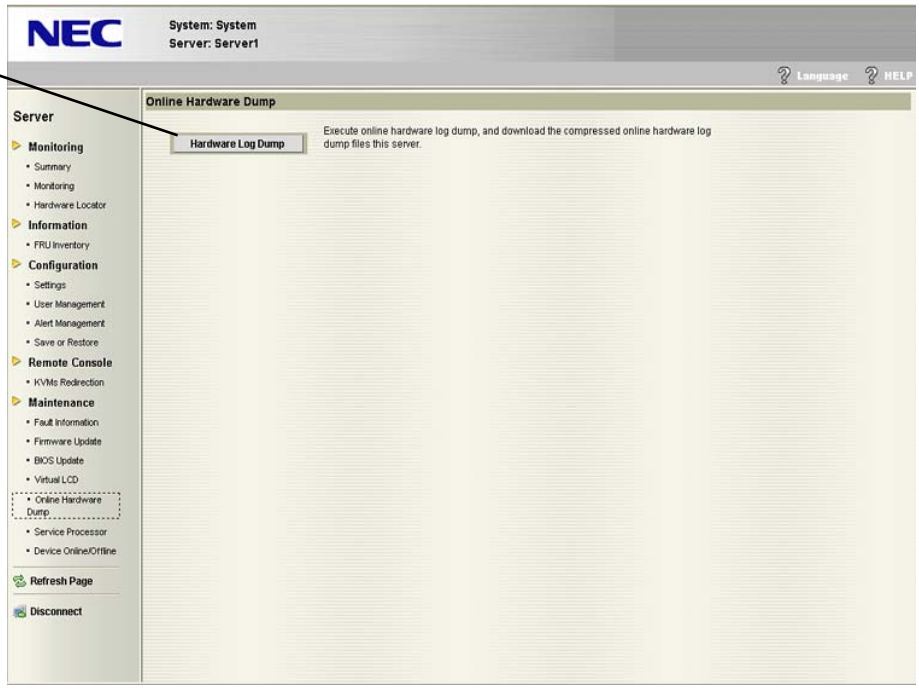
Proc5 IERR	IERR
Proc5 ThermTrip	Thermal Trip
Proc5 Confg Err	Configuration Error
Proc6 IERR	IERR
Proc6 ThermTrip	Thermal Trip
Proc6 Confg Err	Configuration Error
Proc7 IERR	IERR
Proc7 ThermTrip	Thermal Trip
Proc7 Confg Err	Configuration Error
Proc8 IERR	IERR
Proc8 ThermTrip	Thermal Trip
Proc8 Confg Err	Configuration Error
PM5 DIMMP1 UErr	Fault Status asserted
PM5 DIMMP2 UErr	Fault Status asserted
PM5 DIMMP3 UErr	Fault Status asserted
PM5 DIMMP4 UErr	Fault Status asserted
PM5 DIMMP5 UErr	Fault Status asserted
PM5 DIMMP6 UErr	Fault Status asserted
PM5 DIMMP7 UErr	Fault Status asserted
PM5 DIMMP8 UErr	Fault Status asserted
PM6 DIMMP1 UErr	Fault Status asserted
PM6 DIMMP2 UErr	Fault Status asserted
PM6 DIMMP3 UErr	Fault Status asserted
PM6 DIMMP4 UErr	Fault Status asserted
PM6 DIMMP5 UErr	Fault Status asserted
PM6 DIMMP6 UErr	Fault Status asserted
PM6 DIMMP7 UErr	Fault Status asserted
PM6 DIMMP8 UErr	Fault Status asserted
PM7 DIMMP1 UErr	Fault Status asserted
PM7 DIMMP2 UErr	Fault Status asserted
PM7 DIMMP3 UErr	Fault Status asserted
PM7 DIMMP4 UErr	Fault Status asserted
PM7 DIMMP5 UErr	Fault Status asserted
PM7 DIMMP6 UErr	Fault Status asserted
PM7 DIMMP7 UErr	Fault Status asserted
PM7 DIMMP8 UErr	Fault Status asserted
PM8 DIMMP1 UErr	Fault Status asserted
PM8 DIMMP2 UErr	Fault Status asserted
PM8 DIMMP3 UErr	Fault Status asserted
PM8 DIMMP4 UErr	Fault Status asserted
PM8 DIMMP5 UErr	Fault Status asserted
LCD String	Event
PM8 DIMMP6 UErr	Fault Status asserted
PM8 DIMMP7 UErr	Fault Status asserted
PM8 DIMMP8 UErr	Fault Status asserted
PCIe Slot8 Err	Fault Status asserted

PCIe Slot9 Err	Fault Status asserted
PCIe Slot10 Err	Fault Status asserted
PCIe Slot11 Err	Fault Status asserted
PCIe Slot12 Err	Fault Status asserted
PCIe Slot13 Err	Fault Status asserted
PCIe Slot14 Err	Fault Status asserted
SensorFail	Not Acknowledged
SensorFail	Device Error Detected
SensorFail	Timeout
HDD 6 Fault	Drive Fault
HDD 7 Fault	Drive Fault
HDD 8 Fault	Drive Fault
HDD 9 Fault	Drive Fault
HDD 10 Fault	Drive Fault
HDD 11 Fault	Drive Fault
PM5 Non-Crit	transition to Non-Critical from OK
PM5 Critical	transition to Critical from less severe
PM6 Non-Crit	transition to Non-Critical from OK
PM6 Critical	transition to Critical from less severe
PM7 Non-Crit	transition to Non-Critical from OK
PM7 Critical	transition to Critical from less severe
PM8 Non-Crit	transition to Non-Critical from OK
PM8 Critical	transition to Critical from less severe
BM2 Non-Crit	transition to Non-Critical from OK
BM2 Critical	transition to Critical from less severe
PS1 Fail	Power Supply Failure detected
PS1 AC Lost	Power Supply AC Lost
PS2 Fail	Power Supply Failure detected
PS2 AC Lost	Power Supply AC Lost
PS3 Fail	Power Supply Failure detected
PS3 AC Lost	Power Supply AC Lost
PS4 Fail	Power Supply Failure detected
PS4 AC Lost	Power Supply AC Lost
Sensor Fail	Not Acknowledged
Sensor Fail	Device Error Detected
Sensor Fail	Timeout
Fan1 Non-Crit	transition to Non-Critical from OK
Fan1 Critical	transition to Critical from less severe
Fan1 Non-Crit	transition to Non-Critical from OK
Fan1 Critical	transition to Critical from less severe
BM C1 Non-Crit	transition to Non-Critical from OK
LCD String	Event
BM C1 Critical	transition to Critical from less severe
BM C2 Non-Crit	transition to Non-Critical from OK
BM C2 Critical	transition to Critical from less severe

2.14 Online Hardware Dump

Online Hardware Dump is displayed by selecting **"Online Hardware Dump"** from the menu on the left side of the screen.
Hardware log at the time of dump execution in the server is collected in **Online Hardware Dump.**
This function is used to check and confirm the HW settings when malfunction occurs during the server is in operation.

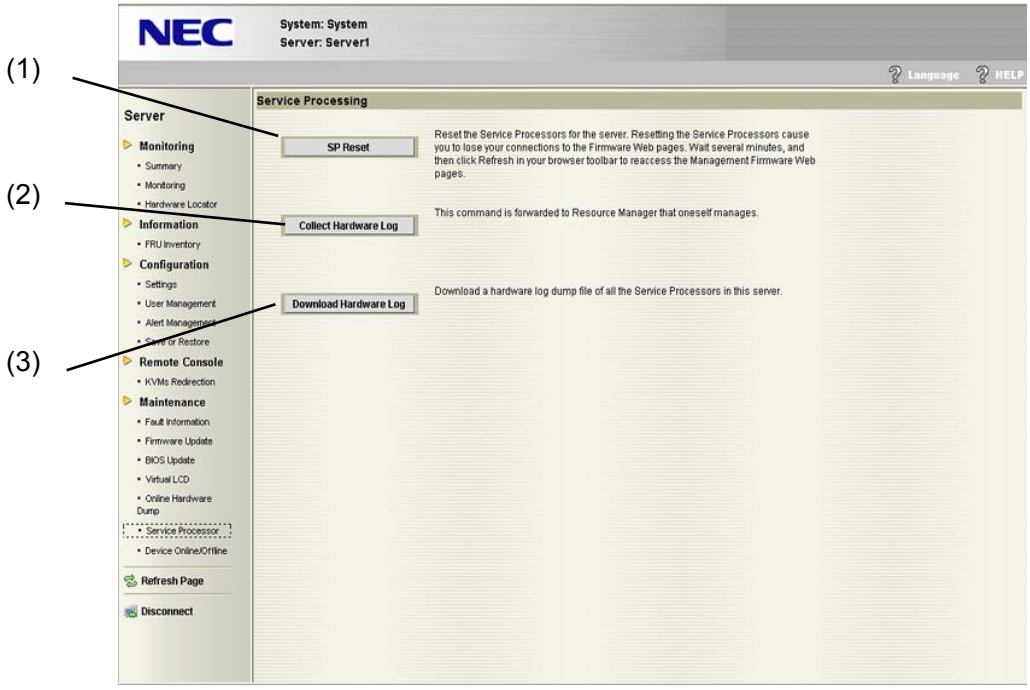
(1)



(1) Clicking **"Hardware Log Dump"** enables to collect the hardware log at the time of clicking and record it as an event.

2.15 Service Processor

Service Processor is displayed by **"Service Processor"** from the menu on the left side of the screen.
Management Firmware reboot(reset) and collecting all the hardware logs inside the server can be performed in **Service Processor**.



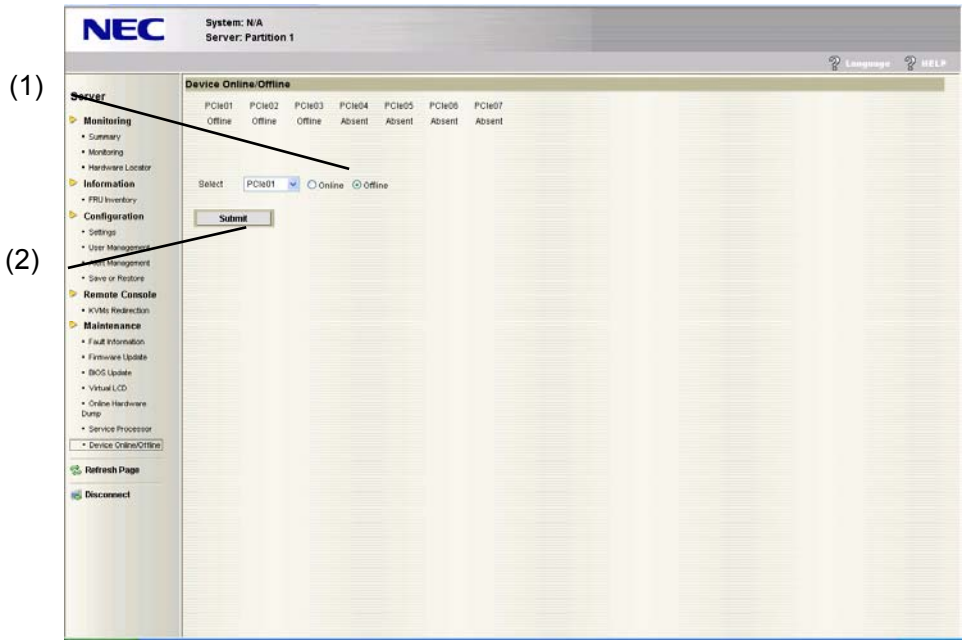
(1) Clicking **"SP Reset"** enables to reset all the MGM(BMC)s configuring the system.

(2) Clicking **"Collect Hardware Log"** enables to collect hardware logs stored in SPI-Flash-ROM in a batch by the MGM(BMC)s.in the server

(3) Clicking **"Download Hardware Log"** enables to download the log file collected in (2).

2.16 Device Online/Offline

Device Online/Offline is displayed by selecting **"Device Online/Offline"** from the menu on the left side of the screen.
Online/Offline setting for device can be performed in **Device Online/Offline**.



(1) Mounting/removal of PCIe to/from the server is performed.
Options for selection
Online
Offline

(2) Clicking **"Submit"** enables to set the information of (1).

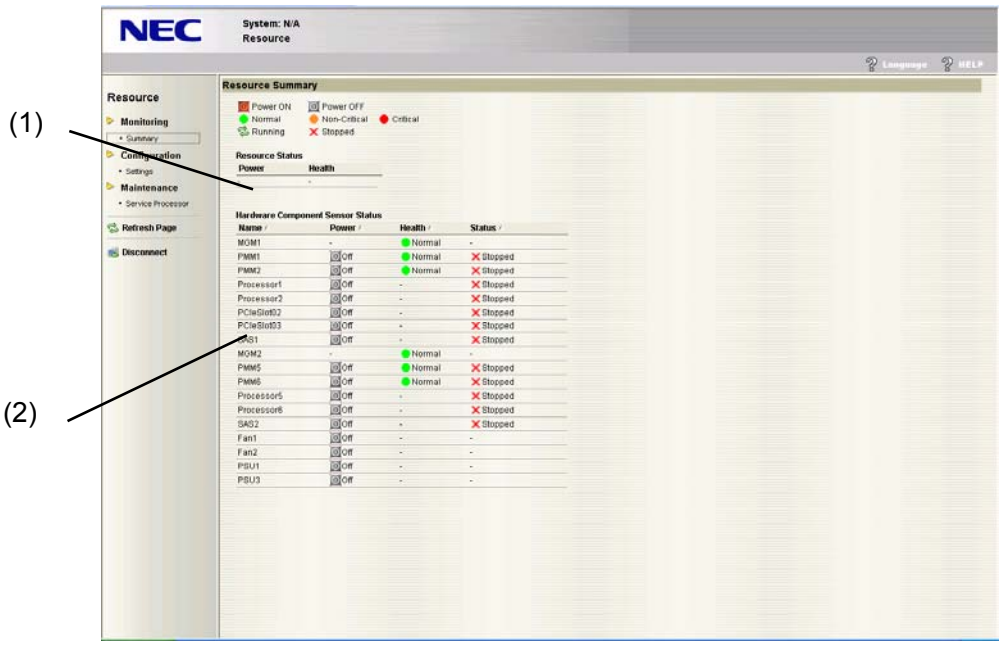
IMPORTANT:
- **This function depends on the online/offline function of the OS. Check if the OS supports it before using this function.**
- **Windows 2008 and Windows 2008 R2 don't support the online function for the 4-port 1000BaseT card, N3108-003.**

Resource Web Console

To connect to Resource Web Console, enter IP address set in the address field by going to **"Box -> Box Network Menu"** from EXPRESSSCOPE® Monitor after starting the browser. The set IP address can be checked by going to **"Box -> Box Network Menu -> View Information."**
It is possible to connect to resource Web console by connecting to system Web console and clicking Resource name in display items for **"Power Consumption by BaseModule"** in **Summary**.

3.1 Summary

Summary is displayed by selecting **"Summary"** from the menu on the left side of the screen.
The status of resource can be checked in Summary. Displayed information is automatically updated in **Summary.**



(1) Displays resource status and (2) displays hardware status.

The following is the description on each item displayed in Summary.

(1) Resource Status
Display resource status.
Power : Power status

Display (value)	Description
Off	DC power of all Server is OFF.
On	DC power of at least 1 Server is ON.

Health : Overall server status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only.
Non-Critical	Recoverable Error occurrence. Maintenance is required inside the server.
Critical	Fatal Error occurrence. Maintenance is required inside the server.

(2) Hardware Component Sensor Status

Display hardware status.

Name : Hardware unit name

Power : Hardware unit power status

Display (value)	Description
Off	DC power of all Servers is OFF.
On	DC power of at least 1 Server is ON.

Health : Overall hardware unit status

Display (value)	Description
Normal	No failure occurrence, or Correctable Error only.
Non-Critical	Recoverable Error occurrence. Maintenance is required inside the server.
Critical	Fatal Error occurrence. Maintenance is required inside the server.

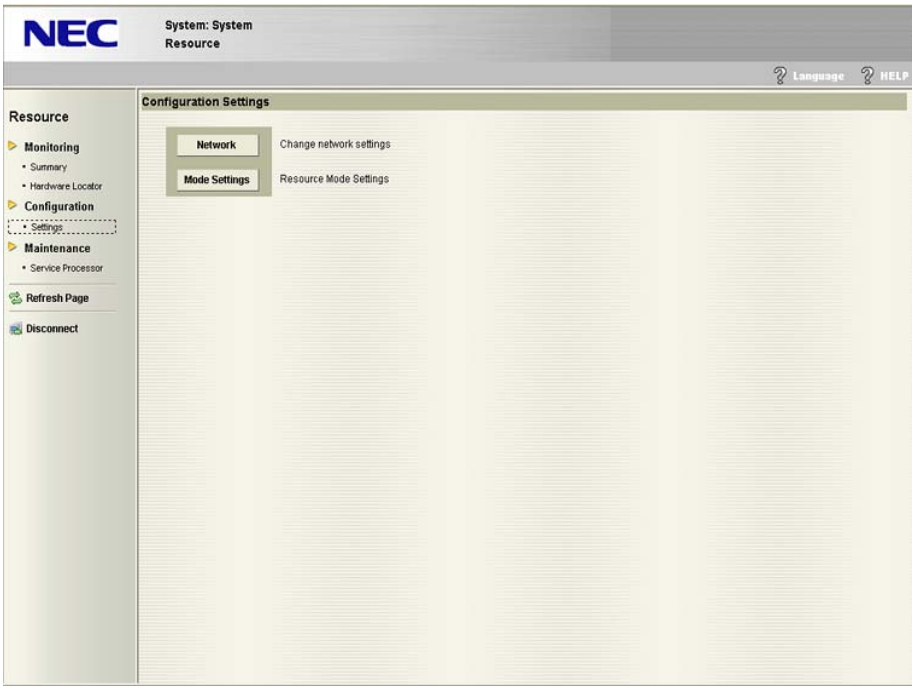
Status : Hardware unit operation status

Display (value)	Description
Stopped	Stopped.
BIST Running	BIST Running status.
Initializing	Boot-up (mounting) in progress status
Initialized	Boot-up (mounting) completed status
Running	Running status
Stopping	Shutdown (mounting) in progress status

3.2 Settings

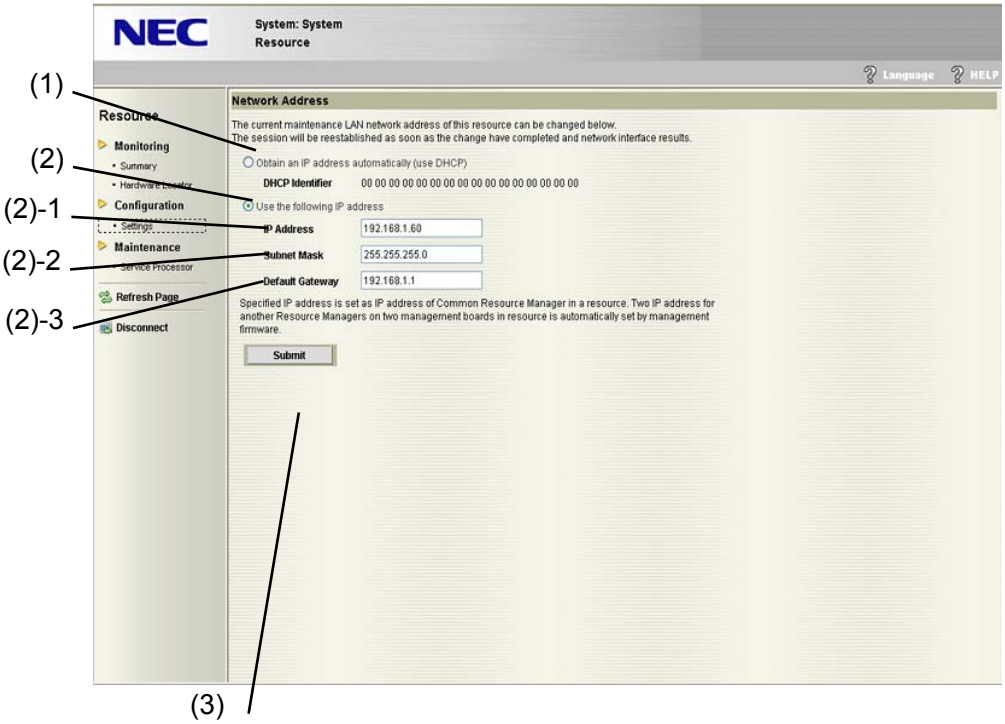
Settings is displayed by selecting **“Settings”** from the menu on the left side of the screen. The following items regarding resource can be set in **Settings.**

- Network
- Mode Settings



3.2.1 Network

Network is displayed by selecting **"Settings"** and clicking **"Network"** of the menu on the left side of the screen.
Setting regarding Network of resource Web console can be set in **Network**.
It can be set either manually or by DHCP server.



(1) Selecting **"Obtain an IP address automatically (use DHCP)"** enables to obtain IP address using DHCP server.

• DHCP Identifier : Display Device GUID.

(2) Selecting **"Use the following IP address"** enables to set the network information manually.

(2)-1 Set IP address in **"IP Address."**

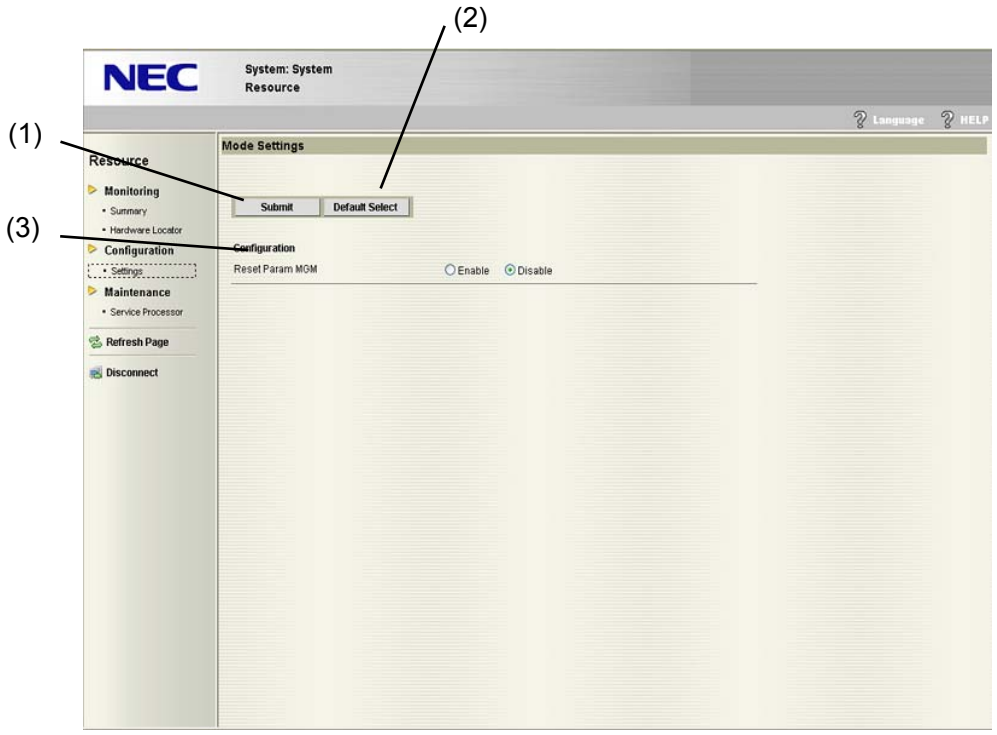
(2)-2 Set subnet mask in **"Subnet Mask."**

(2)-3 Set default gateway in **"Default Gateway."**

(3) Selecting **"Submit"** enables to set the information of (1) or (2).

3.2.2 Mode Settings

Mode Settings is displayed by selecting **"Settings"** and clicking **"Mode Settings"** of the menu on the left side of the screen.
Various operation settings related to resource can be set in **Mode Settings**.



(1) Clicking **"Submit"** enables to set the information of (3).

(2) Clicking **"Default Select"** enables to restore the operation mode status to the default status.

(3) Configuration
Display/set setting information related to configuration.
Clear SG information of Management Firmware

IMPORTANT:

•If A1080a-D model, it is necessary to execute “Enable” of “Reset Parma MGM” twice when restoring the factory default setting of the management firmware.

Resource WEB console is a common part of Server1 and Server2, and it exists in either of them, The existence part is decided at random.

“Reset Param MGM” clears the SG information of one MGM working on the resource web console.

• By the first execution of "Reset Param MGM", SG information of one MGM working on the resource web console is cleared, SP of the MGM is reset, and the failover of the Resource console function occur.

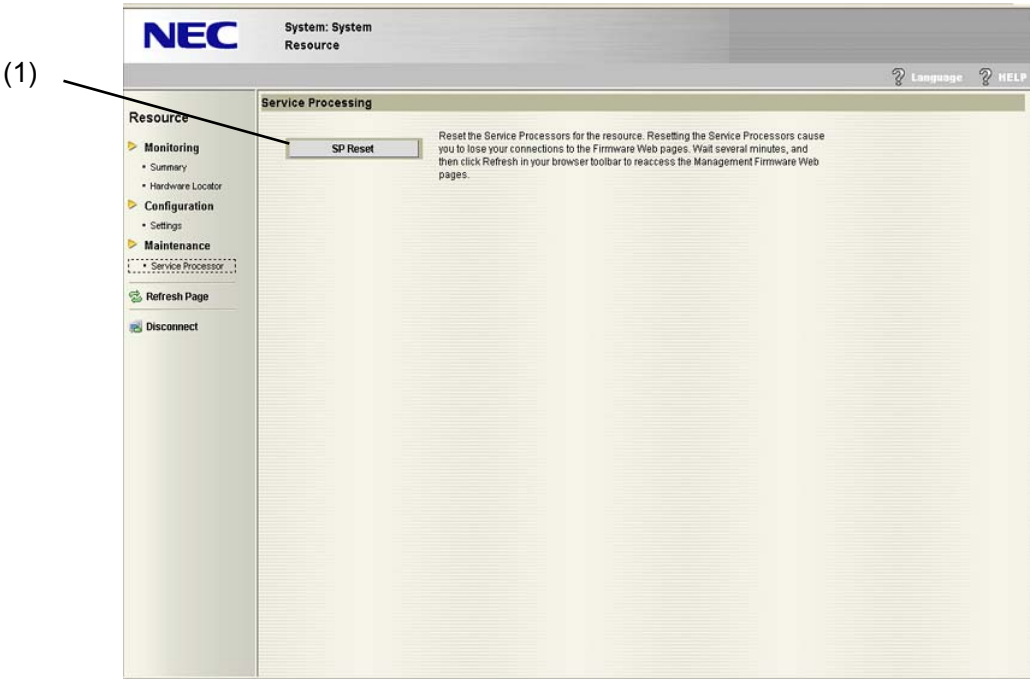
Because Resource Web Console will be disconnected once, connect it again.

• By the second execution of “Reset Param MGM”,it is possible to clear the SG information of the other MGM.

•Don’t use “Restore Default Memu”, unless the maintenance person requests.

3.3 Service Processor

Service Processor is displayed by selecting **"Service Processor"** from the menu on the left side of the screen.
This function is not supported.



(1) The **"SP Reset"** is displayed as gray and impossible to be clicked

SMASH-CLP

About SMASH-CLP

Using SMASH-CLP command line interface,some functions such as below are supported

* Power On/OFF the system
* Display the system information and status
* Set the network
* SOL

SMASH-CLP is command line protocol interface specification defined by DMFT,Distributed Management Task Force.

The management firmware supports SMASH-CLP version 1.0(DSP0214).

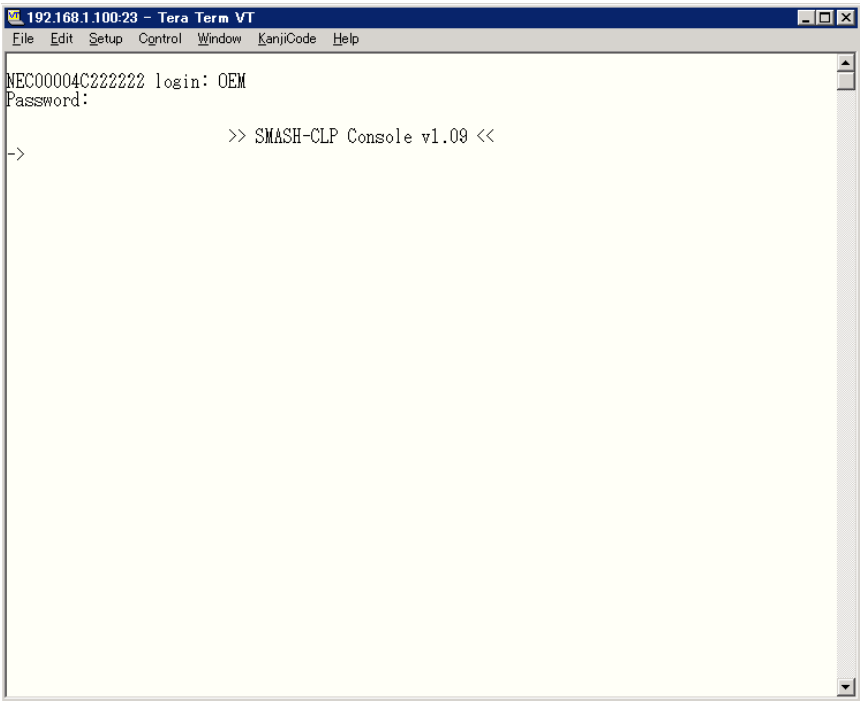
Operation

General description

Connect to the network when using SMASH-CLP. Set the same IP address as set in EXPRESSSOPE® Monitor or Web Console for the network addres of the terminal software.

SMASH-CLP is a kind of shell program and is not divided in some functions such as Web Console. So the same SMASH-CLP program is started up If any IP address is used to connect.

The figure below shows the connection from the terminal software(Tera Term) to management firmware and SMASH-CLP is started up on it.



IMPORTANT:
•Any terminal software can be used.
•However, HyperTerminal of Windows XP or telnet command are not recommended because those might cause artifacts.
•Tera Term and PutTTY are free software and recommended.

Network Protocol

The network listed below are supported

	TCP Port Number
TELNET	23
SSH ver. 2	22

IMPORTANT:
•SSH protocol is recommended if the security is important.
•SSH ver.1 is not supported.

Login Account

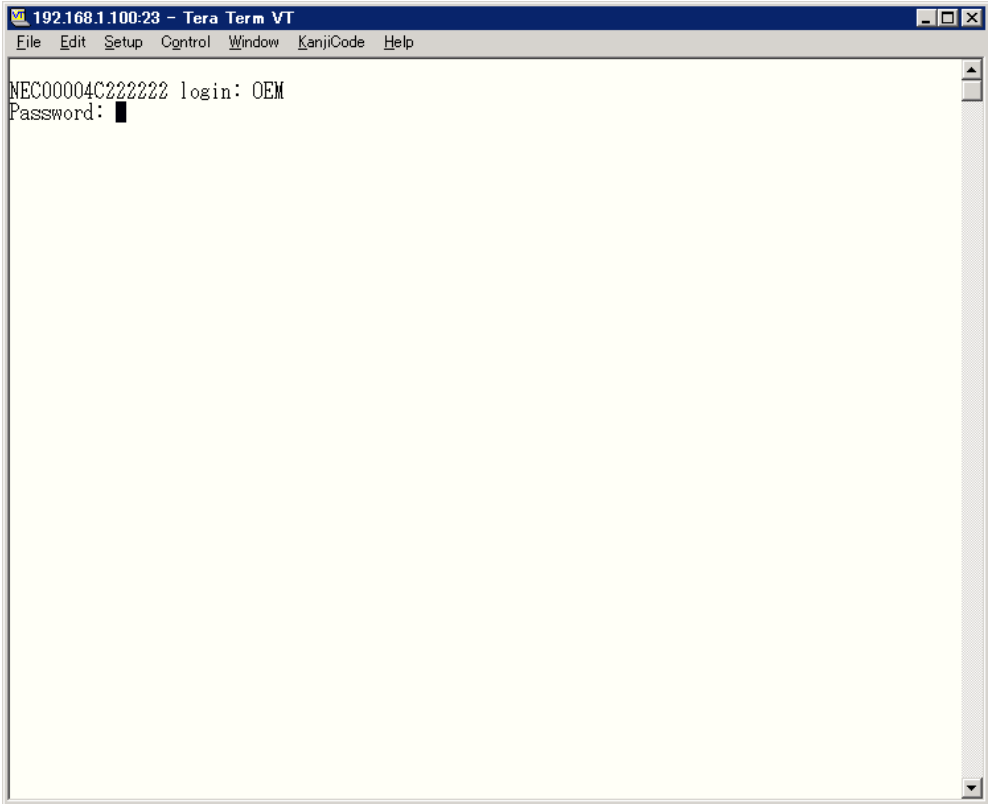
The login accout for the SMASH-CLP listed below are supported.

User Name	Default Password	Privilege	Note
OEM	OEM	1	
Administrator	Administrator	2	
Operator	Operator	3	
sol	sol	4	exclusive SOL user

IMPORTANT:
•The login account for SMASH-CLP and Web console are neither common nor related.
•The lower the number is, the higher the privilege is.
•Some commands are restricted depending on its privilege level.

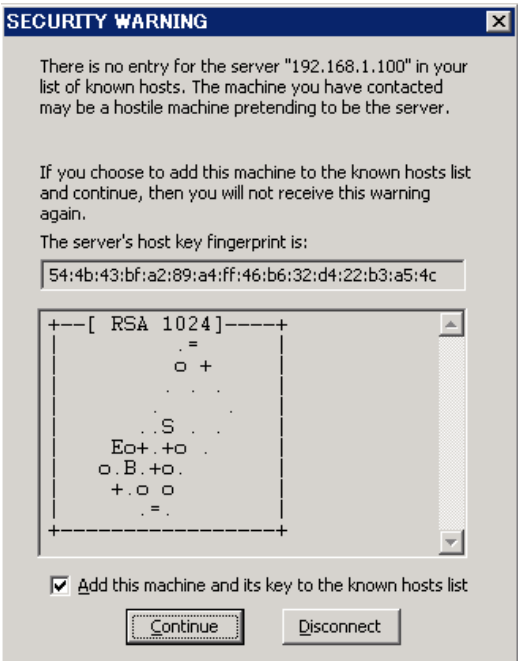
TELNET Connecting

To start up SMASH-CLP using TELNET protocol, connect TCP(Port 23) to the IP address of the management firmware from the terminal software.If the prompt such as below is displayed, then input “User Name” and “Password”. If the authentication of the user failed, the network is disconnected compulsory.

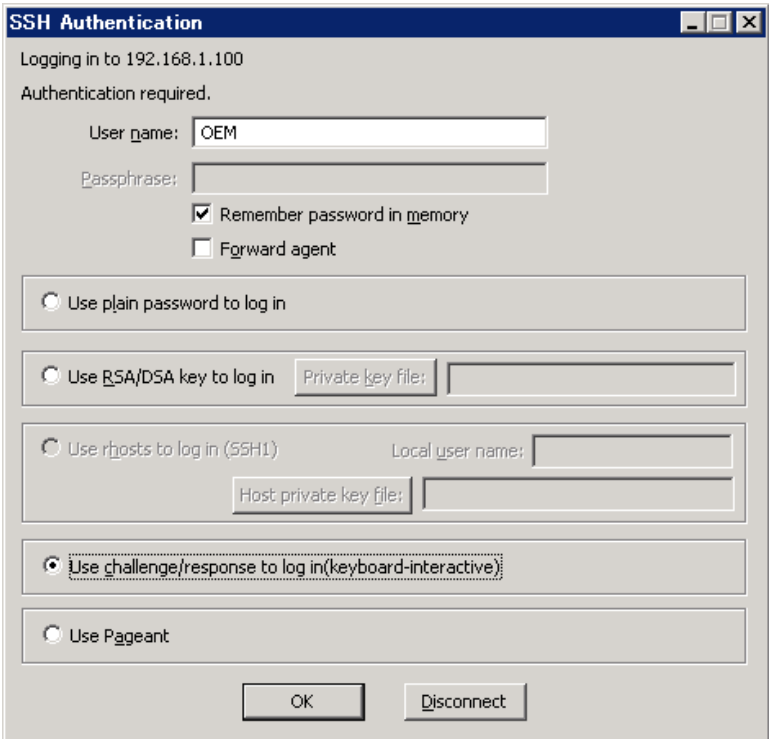


SSH Connecting

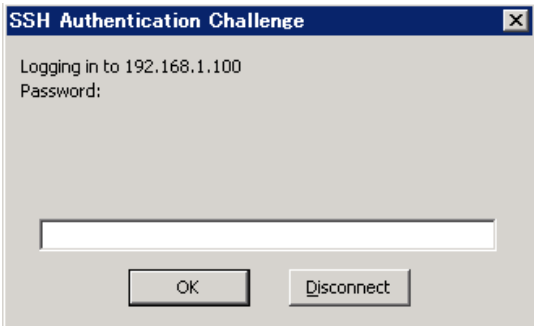
To start up SMASH-CLP using SSH protocol, connect TCP(Port 22) to the IP address of the management firmware from the terminal software.
The security warning message such as below is displayed when it is the first time to connect.The description of the message is different for each software.Ensure that the connection is correct.



Then input “User Name” for Authentication and select “Keyboard-interactive”.



Then input “Password”.



If the authentication succeeded, SMASH-CLP is able to be used.
If it failed, the network is disconnected compulsory.

IMPORTANT:
•It is not possible to use the port number rather than 23 for the SSH port number.
•The authentication method rather than "keyboard-interactive" are not supported.

Simultanious Connection

Depending on the memory capacity of the management firmware, some connections to SMASH-CLP are allowed.

IMPORTANT:
•Less than 5 connections are recommended to avoid shorting the memory of the management firmware.

Key Bind

The key bind , keyboard shortcut on the command line input, listed below are available.

Key	Function
↑, CTRL+P	Pick up the previous command from the history
↓, CTRL+N	Pick up the next command from the history
<-, CTRL+B	Move the Cursor to left
->, CTRL+F	Move the Cursor to right
Enter	Execute the command
CTRL+D	Delete the character displayed below the Cursor
CTRL+A	Move the Cursor to the head of the line
CTRL+E	Move the Cursor to the end of the line
CTRL+K	Delete all characters from the Cursor to the end of the line.
TAB	Add complementation for the keyword of the OEM command

IMPORTANT:
•The interruption of the command by CTRL + C is not supported. However there are some exceptions.

Supported Standard Commands

General description

The following standard SMASH-CLP commands defined by DMTF specification are supported by the management firmware.

Command	Function	Privilege
cd	Move to the target.	Operator
dump	Move the dump from the memory map to the URI. Used for saving SG Information.	Administrator
exit	Terminate the CLP session	Operator
help	Display the help menu	Operator
load	Move the binary image from the URI to the memory map. Used for restoring SG Information and updating the firmware.	Administrator
reset	Power OFF the target compulsory.	Operator
set	Set the value to the target property.	Operator
show	Display the target property and contents such as settings for the network or user account	Operator
start	Power ON the target	Operator
stop	Shut down OS for the target	Operator
version	Display the version of SMASH-CLP	Operator

NOTE:
•The operations for SMASH-CLP is similar to the one of Linux or UNIX. For example, the "show"" command is equivalent to "ls" for Linux and UNIX. The target is equivalent to the directory for Linux and UNIX.
•The prompt for SMASH-CLP is "->".

・ cd

The format of cd(Change default target) command is shown below.

```
cd [<target>]
```

Below are the examples.

```
-> cd partition1
COMMAND COMPLETED :
cd partition1

 ufip=/partition1

-> cd
COMMAND COMPLETED :
cd

 ufip=/partition1

-> cd partition1/
COMMAND SYNTAX ERROR :
cd partition1/
```

IMPORTANT:
•If "/" is added at the end of the target name, it is treated as an error.

・ dump

The format of dump command is shown below.

```
dump –destination <URI> <target>
```

<URI> : Only "tftp" is available
<target> : It is possible to select each partition(server) and save SG information per each partition(server).

For example, execute the command such as below when saving the SG informarion for the partition1.

```
-> dump –destination tftp://192.168.1.1/sg.bin partition1
```

HINT:
- **Before executing this command, the TFTP server should be configured. Because "UDP/69 is used for the TFTP protocol,the security setting might be required depending on the user's environment.**
  By pressing CTRL + C, it is possible to interrupt the command during TFTP network communication.
- **SG,System Genaration, means the configuration settings for the system.**

· exit

The format of exit command is shown below.

```
exit
```

· help

The format of help command is shown below.

```
help [<help topics>]
```

Below are the examples.

```
-> help
COMMAND COMPLETED :
help


Command Name: Help

SMASH CLP is a command line interface for the remote user to the server. The
commands are of the form of <verb><options><targets><target-properties>.

Commands List:
        cd
        Dump
        Exit
        Help
        Load
        Reset
        Set
        Show
```

```
            Start
            Stop
            Version

-> help oemnecsol

Command Name: oemnecsol
Used to

Usage: oemnecsol <baudRate>
```

・ load

The format of load command is shown below.

```
load –source <URI> [<options>] [<target>]
```

<URI> : Only “tftp” is available
<options> : listed below are available.

option	Function
-oemnecfiletype [bmc|bios|sg]	Specify the firmware kind to be uploaded. If omitted,then ”bmc” is specified by default. bmcfw: the management firmware bios: BIOS sg: SG restore
-oemnecduplicate	If A1080a-D Model, update the management firmware on both management board at the same time. The ”bmc” option can be used simultaneously.

HINT:
•Before executing this command, the TFTP server should be configured. Because “UDP/69 is used for the TFTP protocol,the security setting might be required depending on the user’s environment.
By pressing CTRL + C, it is possible to interrupt the command during TFTP network communication.

Execute the command such as below when updating the management firmware.

```
-> load –source tftp://192.168.1.1/rom.ima.update
```

IMPORTANT:
•After updating the management firmware, the new firmware is started up by reseting the management firmware.

Execute the command such as below when updating the BIOS.

```
-> load -source tftp://192.168.1.1/0001A052_R828.rom -oemnecfiletype bios
```

IMPORTANT:
•After updating the BIOS, the new BIOS is started up at the next DC power ON. The management firmware is not necessary.

Execute the command such as below when restoring the SG information.

```
-> load -source tftp://192.168.1.1/bmcsg1.zip -oemnecfiletype sg partition1
```

IMPORTANT:
•Restoring SG information is executed for each partition (server).
•The management firmware is automatically reset and the new SG information is available after restoring the SG information.

HINT:
•SG,System Genaration, means the configuration settings for the system.

・ reset

The format of reset command is shown below.

```
reset [<options>] [<target>]
```

This command reboots(power cycle) of the partition(server). Add “-f” option if it is needed to be powered off and on compulsory.
Below is the example.

```
-> reset partition1
```

IMPORTANT:
•There is a risk to break the OS disk if the power is off and on compulsory during OS is operationg.

HINT:
•The power cycle means the behavior that the power is ON automatically after the power OFF. Reboot means the behavior that the power is ON after the power OFF.

・ set

The format of set command is shown below.

```
set [<target>] <propertyname>=<value>
```

This command sets more than 1 property for the specified target. The argument of <propertyname>=<valule> is necessary. Some properties are set at the same time.To specify more than 1 properties, mark off by a space," ", between the arguments of <propertyname>=<valule>.
The list of the properties set is displayed after executing this set command.
Below is the example.

```
-> set /settings1 timeout=0
COMMAND COMPLETED :
set /settings1 timeout=0

 ufip=/settings1
        timeout=0
```

It is possible to omit the argument of <target>. Also it is possible to specify some arguments of <propertyname>=<valule>.
Below is the example.

```
-> cd /resource1/nic1
COMMAND COMPLETED :
cd /resource1/nic1

 ufip=/resource1/nic1

-> set ipaddress=192.168.1.208 subnetmask=255.255.255.0 committed=1
COMMAND COMPLETED :
set ipaddress=192.168.1.208 subnetmask=255.255.255.0 committed=1

 ufip=/resource1/nic1
        ipaddress=192.168.1.208
        subnetmask=255.255.255.0
        committed=1
```

・ show

The format of show command is shown below. This command displays the target.

```
show [<target>]
```

· start

The format of start command is shown below.

```
start [<target>]
```

For example, execute such as below to power on the partition(server).

```
-> start partition1
COMMAND COMPLETED :
start partition1

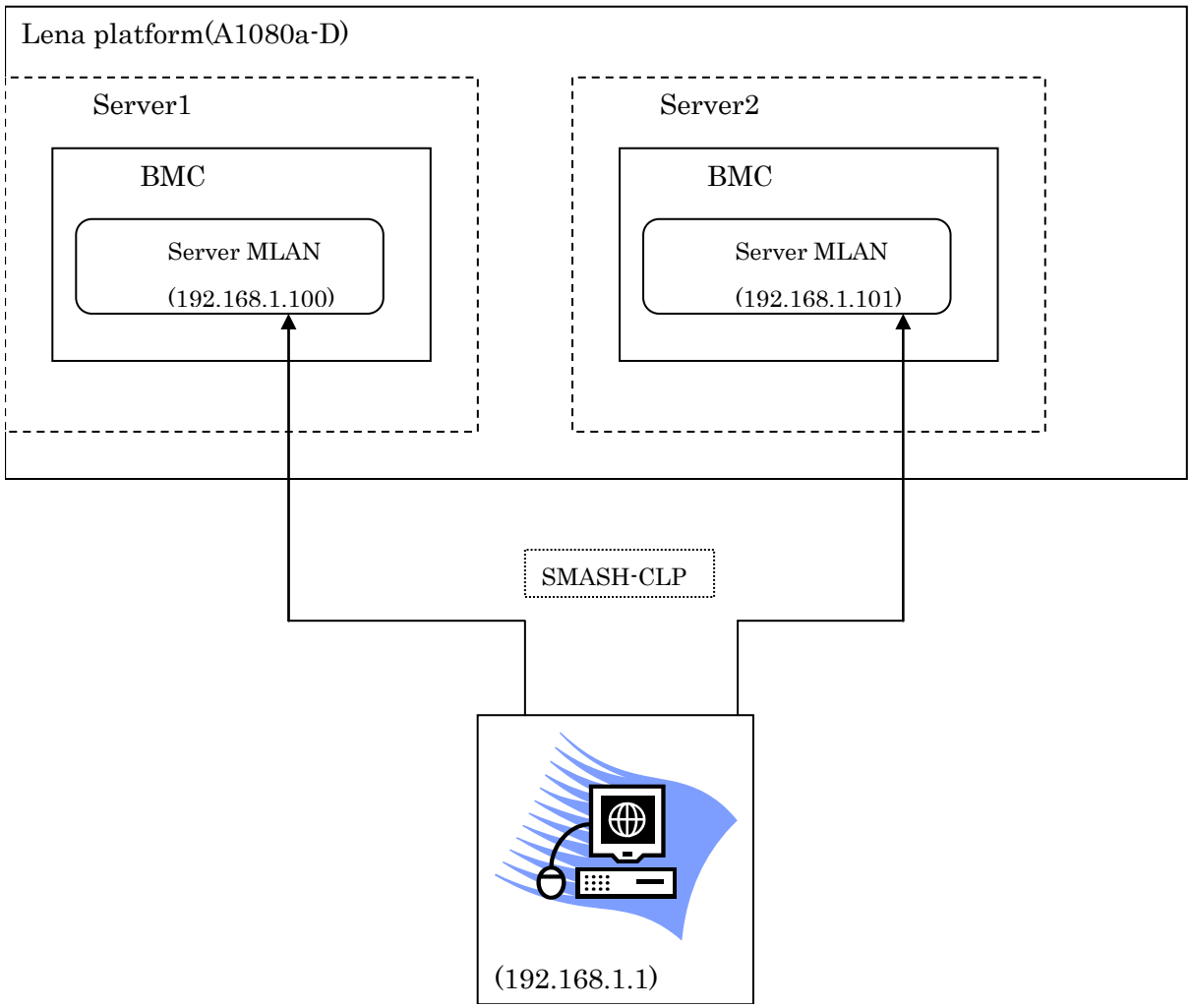
 ufip=/partition1
 System already started
        Start: Target started successfully
```

If the DC power is already ON, the command ends with error.

```
-> start partition1
COMMAND COMPLETED :
start partition1

 ufip=/partition1
 System already started
```

The figure below represents the configuration of A1080a-D model.

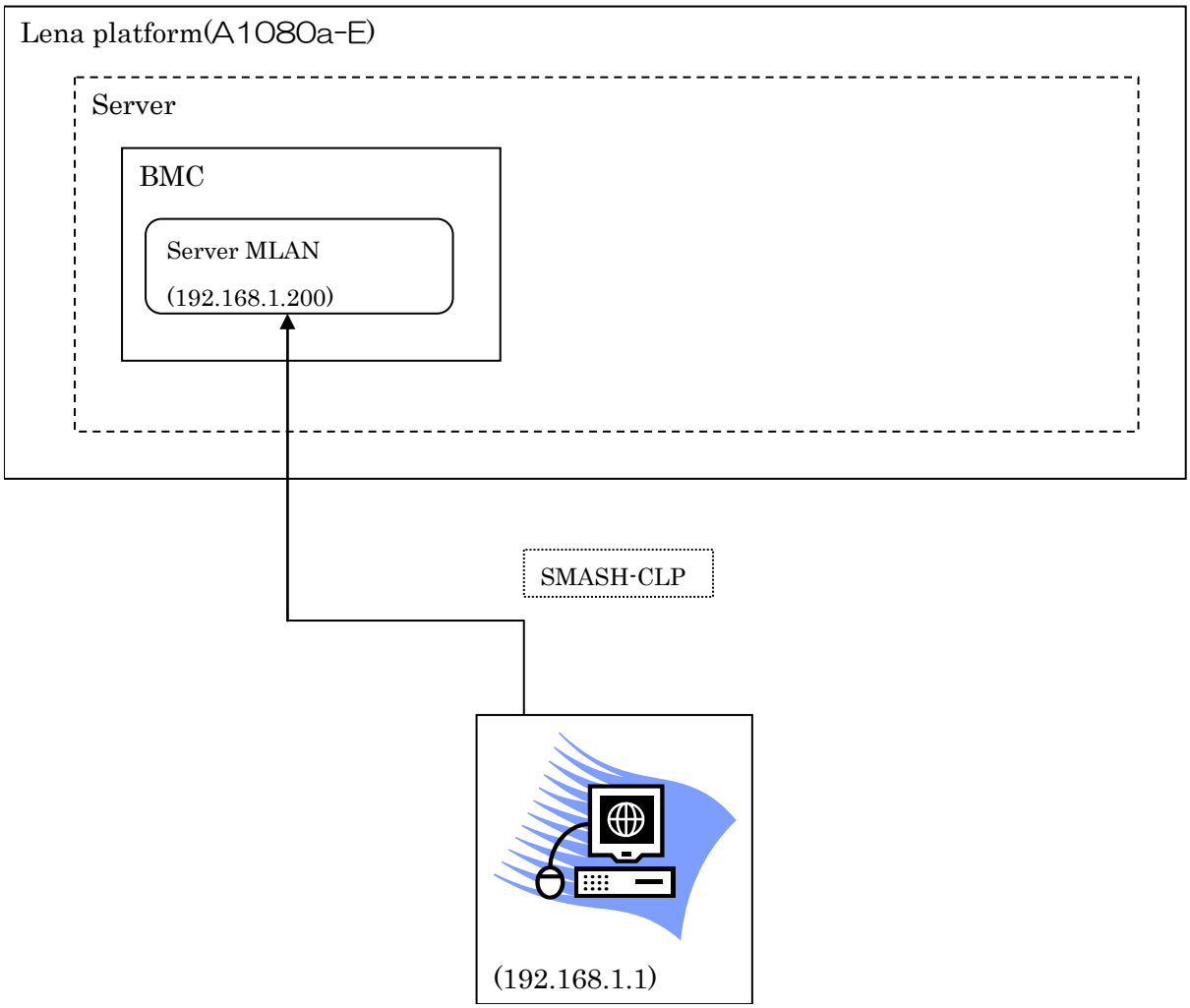


To power on each partition(server), execute start command after connecting to the IP address of the Server MLAN from the console PC.
Below is an example.

```
FOR SERVER1
c:¥>telnet 192.168.1.100
NEC00004C01F026 login: OEM
Password: ***
                        >> SMASH-CLP Console v1.09 <<
-> start partition1

FOR SERVER2
c:¥>telnet 192.168.1.101
NEC00004C01F026 login: OEM
Password: ***
                        >> SMASH-CLP Console v1.09 <<
-> start partition1
```

The figure below represents the configuration of A1080a-E model.



To power on the partition(server), execute start command after connecting to the IP address of the Server MLAN from the console PC.
Below is an example.

```
c:¥>telnet 192.168.1.200
NEC00004C01F026 login: OEM
Password: ***
                              >> SMASH-CLP Console v1.09 <<
-> start partition1
```

· stop

The format of stop command is shown below.

```
stop [<options>] [<target>]
```

To shut down (soft off) the partition(server), execute such as below.

```
-> stop partition1
COMMAND COMPLETED :
stop partition1

 ufip=/partition1
        Stop: Target stopped successfully
```

It is possible to power off the partition(server) compulsory by adding the “-f” option.

```
-> stop –f partition1
```

IMPORTANT:
•There is a risk to break the OS disk if the power is off compulsory during OS is operationg.

· version

The format of version command is shown below.

```
version
```

HINT:
•The version displayed by this command is of SMASH-CLP but not management firmware.

Supported OEM Commands

General description

Below are the OEM commands which are supported.

Command	Privilege	Function
oemnecversion	Operator	Display the version of the management firmware and the BIOS.
oemneclogin	Operator	Do remote login to the other management board.
oemnecsol	SOL	Connect to the SOL of the partition(server)
oemnecreboot	Administrator	Reboot the management firmware
oemnecspdump	OEM	Do SP Dump
oemnecpasswd	Operator	Change the login password
oemnecfirewall	Administrator	Set the firewall of the network protocol
oemnectrusthost	Administrator	Restrict the network access to the management firmware by the original IP address.
oemnecdate	Operator	Display the management firmware date and time.
oemnecforcedump	Operator	Execute ForceDump(Take clush dump)

・ oemnecversion

・Format

oemnecversion

・Parameter

None

・Description

Display the version of the managemen firmware and the BIOS.

“BMCFW” means the management firmware.

・Example

```
BMCFW Revision          : 0.0.3.5 ('SVN3510 test@example ')
BMCFW Build Time        : Jan 19 2010 20:32:19

BIOS Revision           : 1.00

BMCFW FLASHROM block layout:
```

```
  It takes some tens of seconds to retrieve flashrom blocks.
  Use `CTRL+C' signal to abort the processing.
 |ADDR          NAME       VERSION TYPE SIZE       CRC       |
 |0x00000000 boot       0.0.2.9      1 164736     7fe15b48|
 |0x00060000 params     0.0.2.9     17 4063232    03553266|
*|0x00460000 root       0.0.3.5      7 13045824 355f7e71|
*|0x01b60000 osimage    0.0.3.5      6 1192708    dc82ac72|
 |0x01cc0000 root       0.0.3.5      7 13045824 4c299842|
 |0x033c0000 osimage    0.0.3.5      6 1192708    dc82ac72|
 |0x03520000 storage    0.0.2.9     17 11141120 5303aaf8|
 |0x03fe0000 m300v      0.0.0.0      2 95           a9a8493e|
```

HINT:
•It is possible to interrupt this command by pressing CTRL + C.

・ oemneclogin

・Format

oemneclogin <PM>

・Parameter

pm: Partition ID(0-1)

・Description

Do the network login (TELNET) to the management board of the specified Partition ID. After the login authentication, the operator can start up SMASH-CLP of the other management board. The number of Partition ID,”0” or “1”, means “Server1” or “Server2”.

・Example

-> oemneclogin 1

・ oemnecsol

・Format

oemnecsol [-cm] <baud rate>

・Parameter

baud rate: (bps)

・Description

SOL(Serial Over LAN) is the structure to communicate with the client computer using serial console data of the host OS on the LAN(RMCP+).

It is possible to use SOL via LAN wirh the client software which applies to RMCP+ such as IPMItool or ipmiutil.

If using “oemnecsol”, there is no need to prepare the client software which supports RMCP+ and it is possible to use SOL on general terminal software.

Below shows the flow to use SOL.The user authentication is needed two times.

When it is the first login, the user name is “sol” and the password is “sol”.

At the second login, the user account which is registerd by Server Web console is used.

1. Connect to the management firmware using TELNET/SSH
   NEC00004C01F020 login: sol
   Password: sol

2. The prompt of the SMASH-CLP is displayed
   ->

3. Execute oemnecsol command
   -> oemnecsol <baud rate>
   PM_login: <login name for PM> <- Resistered by Server Web console
   PM_password: <password for PM> <- Resistered by Server Web console
4. SOL connection to the host OS is available
5. Close SOL connection (Input “CTRL+B”)
6. Terminate SMASH-CLP
   -> exit

Specify Baud rate by the bpm(bit per second)

HINT:
- **The default baud rate value is “115200”.**
- **Because the baud rate for the host OS is different depending on the OS, set the proper value for the OS.**
  For example, the value which is set by BIOS will be used when Microsoft Windows. It depends on the baud rate value which is set for Kernel parameter when RedHat Enterprise Linux.
- **Set the screen size of the terminal software as 80x24.**
- **At the login authentification of second time or more, null user account is usable. It is following IPMI.**

Key Bind

The key bind , keyboard shortcut on the SOL console, listed below are available.

Key	Function
<CTRL+e>cf	Grab the authority to operate the key
<CTRL+e>af	Send a break signal
<CTRL+b>	Return to SMASH-CLP from OS console

・Example

```
NEC00004C01F020 login: sol
Password: sol
-> oemnecsol 115200
Ctrl-Ecf    Switch ownership mode
Ctrl-Eaf    Send break
Ctrl-B       Return to SMASH-CLP
[ownership mode]
```

After the command is executed, the information for the SOL setting is displayed. And the SOL Is available.
To terminate the SOL connection, input “CTRL+B”.

```
->
```

HINT:
- **”CTRL + B” rather than CTRL + C is used for terminating the SOL connection. Take care if vi is used**
  Three SOL connections are able to be open at the same time. If new connection is opened, then the new one is closed automatically
- **Sending "Break signal" is available when calling Magic SysRqfunction of Linux.**
- **To input <CTRL+e>cf, type “e” while typing CTRL key and then release the CTRL key. Then type “c” and “f”.**

IMPORTANT:
- **When the management firmware is busy, the SOL console may disconnect. If necessary, please reconnect the SOL console.**
- **If network has any troubles, TCP session may remain on the management software. If it occurred, it may be impossible to connect to SMASH-CLP or SOL console newly. Wait for a while and connect again. TCP KEEP ALIVE function disconnects TCP sessions about 2 hours.**
- **If idle status continues for 8 minutes, SMASH-CLP console will be disconnected automatically. But SOL console will not be disconnected automatically.**
- **When using SOL connection which used IPMI-based RMCP+, SOL function by oemnecsol command is not usable. After disconnecting the SOL console the command become usable.**

The maximum connections

Three connections to SOL console for each server are available at the same time. The console which is connected firstly is active console and key operation is available on it. The consoles which are connected secondly and thirdly are mirror console and key operation is not available on them. They only display the active console.
To promote the mirror console to active console, execute <CTRL+e>cf which is described in the Key Bind.

After a mirror console promoted to active console, the previous active console become mirror console automatically. At that time the message below will be displayed on the SOL console.

```
[Forced to mirroring mode by user]
```

If an active console is disconnected, the mirror consoles are remained as mirror, not promoted to active automatically.

If keys are typed on mirror console, the message below will be displayed on the SOL console. And the typed information will be discarded.

```
[mirroring mode]
```

To start as a mirror console firstly, execute oemnecsol command with “-m” option. The console will not become active unless executing the command to grab the authority to operate the key

```
-> oemnecsol –m <baud rate (bps)>
```

SOL Console Log

It is possible to refer the newest SOL Console Log , 120,000 bytes maximum, when executing oemnecsol command with “-c” option. Below shows the key bind.
If any escape sequences are included in the console log, the display may have disorder. If the management firmware is rebooted, the log will be disappeared.

```
-> oemnecsol –c <baud rate (bps)>
```

Key	Function
+	Go to next page
-	Go back to previous page
F	Jump to the oldest page
L	Jump to the newest page
CTRL+B or q	Return to SMASH-CLP console
?	Help

・ oemnecreboot

・Format

oemnecreboot [--force]

・Parameter

None

・Description

This command reboots(reset) the management firmware. Execute this command to have the new Management firmware available after the managemern firmware is updated.
It is executable when the server is stable,while DC OFF , EFI shell or OS is running.

・Example

-> oemnecreboot

IMPORTANT:
• Don't use this command imprudently while the system is operating.
• To reboot without any condition, add force option

・ oemnecspdump

・Format

oemnecspdump

・Parameter

None

・Description

This command takes management firmware log so called SP Dump.
The maintenance person uses this command when a fauilre occurred. The log data as uuencode format is displayed on the terminal of the software.

・Example (taking logs. Execute on SMASH-CLP and save the terminal log as “console.log”)

-> oemnecspdump

IMPORTANT:
• Don’t use this command imprudently while the system is operating.
• Don’t type any key while executing this command. Otherwise the terminal log will be broken and not recoverable.

・ oemnecpasswd

・Format

oemnecpasswd

・Parameter

None

・Description

This command changes the password which is used currently for the exclusive user account of SMASH-CLP. It is impossible to change the password of the System/Server/Resource Web console.

The characters used for the password are the English alphabet (either CAPITAL or small) and the figures (0 -9). And the length of the password shoud be more than 5 and less than 9.(6 to 8 characters)

・Example

```
NEC00004C01F020 login: OEM
Password: ***
-> oemnecpasswd root
The superuser password can not be changed.
-> oemnecpasswd
Changing password for OEM
Enter the new password (minimum of 5, maximum of 8 characters)
Please use a combination of upper and lower case letters and numbers.
Enter new password:
Re-enter new password:
Password changed.
```

IMPORTANT:
• The setting of the password is applied immediately after executing this command.
Even after the management firmware reset, the setting is valid.

・ oemnecfirewall

・Format

oemnecfirewall [<telnet|http> <on|off>]

・Parameter

<telnet|http>: TELNET Protocol or HTTP Protocol

<on|off>: Enable or Disable

・Description

This command sets the security settings regarding to tne network protocol of the management firmware. It is possible to enable or disable the connection of TELNET or HTTP. If no parameter is specified, the current setting is displayed.

HINT:
•Because the default settings for the TELNET and HTTP are Enable, change it to Disable if there are any concerns on the security.

・Example

```
-> oemnecfirewall
-> oemnecfirewall telnet off
-> oemnecfirewall http on
```

IMPORTANT:
• The setting is applied immediately after executing this command.
Even after the management firmware reset, the setting is valid.

・ oemnectrusthost

・Format

oemnectrusthost [<on|off> [<ipaddr1> <ipaddr2> ... <ipaddr5>]]

・Parameter

<on|off>: Enable or Disable

<ipaddr1> <ipaddr2> ... <ipaddr5>: IP Address (less than 6)

・Description

This command restricts the network access to the management firmware by the IP address.
When allowing the access from specified console terminal only, enable the setting by this command. Because the setting is Disable by default, any IP address are allowed to access.
If no parameter is specified, the current setiing is displayed.

・Example

```
-> oemnectrusthost
-> oemnectrusthost off
-> oemnectrusthost on 192.168.1.50 192.168.1.51
```

IMPORTANT:
• The setting is applied immediately after executing this command.
Even after the management firmware reset, the setting is valid.

・ oemnecdate

・Format

oemnectdate

・Parameter

None

・Description

Display the date and time of the management firmware.

・ oemnecforcedump

・Format

oemnecforcedump

・Parameter

None

・Description

Execute INIT to the server and take crash dump for the host OS.
It is the same operation as ForceDump which is executable from the Status Display or Server Web Console.
This command needs to be executed on the target partition.

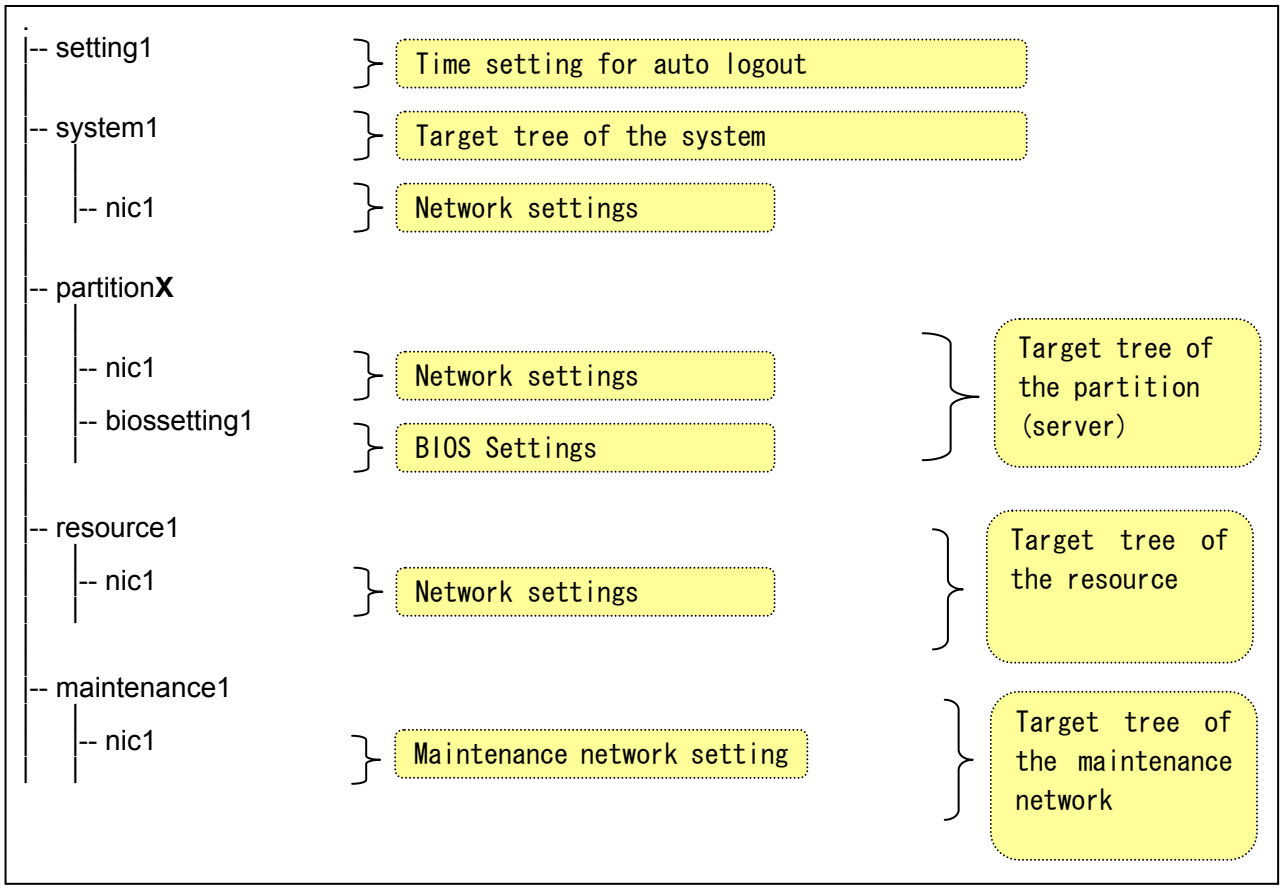
Target Tree

General description

Below are the structures of the target tree in the management firmware. It is possible to display the target tree if executing the show command on SMASH-CLP. The default setting of the current target just after the login is the root,"/".

The structure of the tree

Below is the structure of the target tree for SMASH-CLP. The number of the target is "1" origin" because of the specification of SMASH-CLP.
The ID of the partition(server) is assigned as same as the number of the partition(serevr) to which SMASH-CLP is connected.



Property

Below are the property for the target of SMASH-CLP.

Target	Property (example)	Description
ufip=/	Non	
ufip=/settings1	timeout=500	Session Timeout
ufip=/system1	Guid=3F2504E0-4F89-11D3-9A0C-001122334455	Display DeviceGUID of the system
ufip=/system1/nic1	ipaddress=192.168.1.100 subnetmask=255.255.255.0 usedhcp=0 committed=1 macaddress=00:00:4C:02:C7:9B defaultgatewayaddress=0.0.0.0	Display and Set the system network
ufip=/partitionX	Guid=3F2504E0-4F89-11D3-9A0C-5566778899AA CurrentPowerStatus=ON SysIdSupported=SUPPORTED SysIdentification=OFF	Display DeviceGUID and the power status of the server
ufip=/partitionX/nic1	ipaddress=192.168.1.127 subnetmask=255.255.255.0 usedhcp=0 committed=1 macaddress=00:00:4C:02:C7:9B defaultgatewayaddress=0.0.0.0	Display and Set the server network
ufip=/partitionX/biossettings1	Proc_one=1 Proc_two=1 Proc_three=1 Proc_four=1 Proc_five=1 Proc_six=2 Proc_seven=1 Proc_eight=1 Dimmone_one=2 Dimmone_two=2 Dimmone_three=2 Dimmone_four=2 MemoryMirroring=0 MemorySparing=0 PatrolScrubbing=1 MemoryChannelSelection=1 MemoryInterleave=1 MemoryAddressingSize=0	Display and Set the BIOS SG settings

	HyperThread=0 PCIeErrorRecovery=0 oemnec_cputhrottle=00 oemnec_cputhrottle_current=00	
ufip=/resource1	Guid=3F2504E0-4F89-11D3-9A0C-AABBCCDDEEFF	Display DeviceGUID of the resource
ufip=/resource1/nic1	ipaddress=192.168.1.127 subnetmask=255.255.255.0 usedhcp=0 committed=1 macaddress=00:00:4C:02:C7:9B defaultgatewayaddress=0.0.0.0	Display and Set the resource network
ufip=/maintenance1/nic1	ipaddress= 172.16.255.254 subnetmask=255.255.0.0 macaddress=00:00:4C:88:88:88	Display and Set the maintenance network

IMPORTANT:
•Don't use set command which changes the MAC address because it might cause malfunction of the management firmware.

IMPORTANT:
•The GUID is big-endian.

IMPORTANT:
•It is possible to set some targets for the default gateway address. However, the final setting is valid. Only one default gateway can be existed for the management firmware.

setting1 target

Below is the properties for the target.

Timeout :

Specify the time of the session timeout.

If there is no key operation with pressing Enter key by operator for the specified time, it logouts automatically and close SMASH-CLP. If "0" is specified, the time is unlimited.

・Example (set the time for 1200 seconds, 20 minutes)

```
-> set timeout=1200
```

IMPORTANT:
•The setting is valid even after reset of the management firmware. This setting is saved and restored as SG information.
•The default setting is 500 seconds (about 8 minutes).

system1 target

This target is regarding the system.

system1/nic1 target

This target is for the network settings of the system.
Below is the property of the target.

ipaddress :
Set the network IP address for the system as static
It is valid when committed=1 is set.

subnetmask :
Set the network subnet mask for the system as static
It is valid when committed=1 is set.

usedhcp
Specify whether if DHCP for the network IP address of the system is used or not.
DHCP is enabled when usedhcp=1 and this setting is valid when committed=1 is set.

defaultgatewayaddress
Set the IP address for the default gateway.
It is valid when committed=1 is set.

committed
Validate the property settings such as ipaddress, subnetmask,usedhcp and defaultgatewayaddres when committed=1 is set.

macaddress
Display the mac address of the management board.

IMPORTANT:
- **Don't use set command which changes the MAC address because it might cause malfunction of the management firmware.**
- **It is not possible to set IP address, subnet mask, default gateway, DHCP at the same time. Set and commit(committed =1) each value one by one.**
- **Set the address of IP Addr/IP Mask/Gateway Addr within the network of the same segment.**
- **Set an arbitrary unused address for Gateway Addr even if Gateway does not exist. It is not possible to disable the Gateway Addr.**
- **When setting a network, conflict check of IP address is executed for 10-20 seconds. During the check it is not possible to set the other network newly. Wait for a moment until the check is done.**
- **While setting the network or operating the system, the conflict check of IP address is executed periodically. If any confliction is detected, the IP address and its IP mask will be treated as invalid,=0.0.0.0. After removing the factor of the confliction, set the network again.**

Examples

If the properties such as ipaddress, subnetmask,usedhcp and Defaultgatewayaddres are set, the properties are displayed as “Not committed” unless committed=1 is set.

Ipaddress setting example1

```
-> cd /system1/nic1
COMMAND COMPLETED :
cd /system1/nic1

 ufip=/system1/nic1

-> set ipaddress=192.168.1.5
COMMAND COMPLETED :
set ipaddress=192.168.1.5

 ufip=/system1/nic1
        ipaddress=192.168.1.5

-> set committed=1
COMMAND COMPLETED :
set committed=1

 ufip=/system1/nic1
        committed=1
Network configuration is going to be committed.....
Do you agree that Current Session will go off? y/n:y  (*)
The Current Session will go off..
User is requested to Open a new Session with the new session parameters.....
```

(*) It is displayed and requires the input if started up using TELNET/SSH.

Ipaddress setting example2

```
-> set /system1/nic1 ipaddress=192.168.1.6 committed=1
COMMAND COMPLETED :
set /system1/nic1 ipaddress=192.168.1.6 committed=1

 ufip=/system1/nic1
        ipaddress=192.168.1.6
        committed=1
Network configuration is going to be committed.....
Do you agree that Current Session will go off? y/n:y  (*)
The Current Session will go off..
User is requested to Open a new Session with the new session parameters.....
```

(*) It is displayed and requires the input if started up using TELNET/SSH.

partition<X> target

This target is regarding the partition(server).
It displays the information such as DeviceGUID, Power Status and Chassis ID function for the partition(server).

partition<X>/nic1 target

This target is for the network settings of the server.
The usage is as same as the system1/nic1 target.

partition<X>/biossettings1 target

This target is for the BIOS settings of the server.
Beacause it is possible to start up the server with the least information of the BIOS SG settings, the automatic OS boot is possible by using macro script.
Because the full SG information of the BIOS can not be set by SMASH-CLP, use Web Console if necessory.
Below shows the property of the target.

Settings	Description
Proc_{one,two,three,four,five,six,seven,eight}	Disable/Enable the processor by socket rather than core. It is possible to configure 4 or less sockets in a partition. 1partition. Always 4,the maximum number, of the properties are displayed regardless how many sockets are configured. Proc_{one,two,three,four} = Settings for Domain1 Proc_{five,six,seven,eight} = Settings for Domain2 Settings: Enable=1, Disable=2
Dimmone_{one,two,…,nine} Dimmone_{one,two,…,six}_{zero,one,nine}	Disable/Enable the DIMMs in Domain1 It is possible to configure 64 or less DIMMs in a partition. Always 64,the maximum number, of the properties are displayed regardless how many DIMMs are configured. The status of the DIMMs which are specified at system starting up are not applied completely. Settings: Enable=1, Disable=2
Dimmtwo_{one,two,…,nine} Dimmtwo_{one,two,…,six}_{zero,one,nine}	Disable/Enable the DIMMs in Domain2 Same as above.
MemoryMirroring	Memory configuration Settings: 0=Disable, 1=Socket Mirroring, 2=PMM Mirroring

MemorySparing	Memory configuration Settings: 0=Disable, 1=Enable
PatrolScrubbing	Memory configuration Settings: 0=Disable, 1=Enable
MemoryChannelSelection	Memory configuration Settings: 0=Dual(non-hemi mode), 1=Quad(hemi mode)
MemoryInterleave	Memory configuration Settings: 0=Disable, 1=Intra, 2=Inter(4way), 3=Inter(Max)
MemoryAddressingSize	Adressing Size Settings: 0=44bit mode, 1=40bit mode
HyperThread	Hyper Thread（Not supported） Settings: 0=Disable, 1=Enable
PCIeErrorRecovery	PCI Error Recovery（Not supported） Settings: 0=Disable, 1=Enable
oemnec_cputhrottle	The upper limit of the P-state of the processor. The range to set is from the value of mode0 to the value displayed by oemnec_cputhrottle_current. Settings: mode0=maximum number, mode1, mode2, mode3, mode4, mode5, mode6, mode7=minimum number,
oemnec_cputhrottle_current	The lower limit of the P-state of the processor.（Display only）

IMPORTANT:
•HyperThread and PCIeErrorRecovery are not supported.

· resource1 target

This target is regarding the resource.

· resource1/nic1 target

This target is for the network settings of the resource.
The usage is as same as the system1/nic1 target.

· maintenance1 target

This target is regarding the maintenance network.

· maintenance1/nic1 target

This target is regarding the maintenance network.
It is possible to display the settings of the network, but not to set.

IMPORTANT:
•Don't use set command which changes the MAC address because it might cause malfunction of the management firmware.

Reset and Clear

Refer to this section when the server does not operate or when the setting contents previously set in BIOS need to be restored to the factory default.

Reset

Hard Reset

IMPORTANT:
Hard reset clears memory inside DIMM of the server and the data being processed. To perform reset besides when the server hangs up, ensure that no process is operated by the server.

When the reset is required after setting BIOS, Web BIOS, etc. and the server does not operate properly, the server can be reset by the following procedures.

1. Reset from EXPRESSSCOPE® Monitor

Operate navigation buttons of EXPRESSSCOPE® Monitor and perform the following from **Operation Menu**.

Select **"Serverx -> Chassis Control -> Hard Reset."**

2. Reset from server Web Console

After connecting to server Web console, perform the following from **Summary** (sub menu).

Click **"Hard Reset"** button.

3. Reset from BIOS menu

Start BIOS and perform the following from **Main Menu** of BIOS.

Select **"Boot Maintenance Manager -> Reset System."**

4. Reset from SMASH-CLP

Refer the chapter of SMASH-CLP for details.

Management Firmware Reset

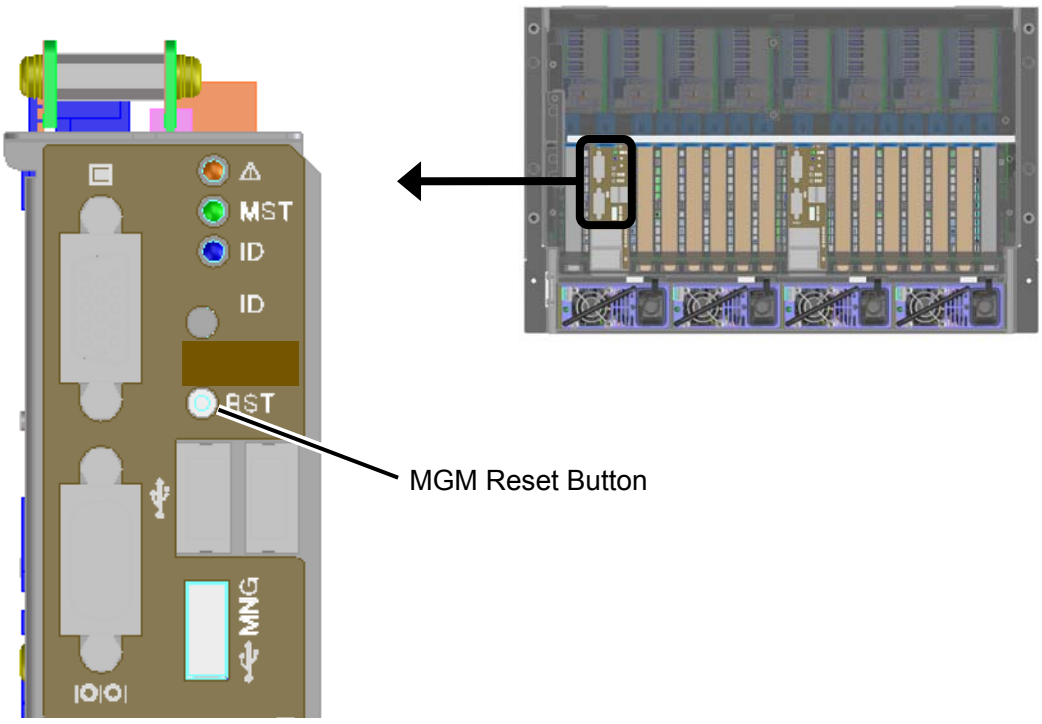
When display of EXPRESSSCOPE® Monitor or Web Console does not perform properly, when updating firmware or when changing vKVM settings, reset BMC(Service Processor) by the following procedures.

IMPORTANT:
• By performing reset of Management Firmware while connected to Web console, the connection to remote console is disconnected.
• To connect to Web console after resetting Management Firmware, connect it after waiting for 3 minutes or so.
• Use MGM reset button only when it might occurr hardware error or failure. Otherwise SG information of the management firmware might be corrupted.

1. Press the MGM reset button of management module on the rear of the server.

Use a thin-tip object when pressing the button.

Rear of the server



2. Reset from server Web console

After connecting to server Web console, press **“SP Reset”** button from Service Processor (sub menu). If two MGMs are configured in the system, resets are issued for both MGMs. To issue reset for each MGM, press **“SP Reset”** button on server Web console.

3. Reset from SMASH-CLP

After connecting to SMASH-CLP, execute oemnecreboot command. Reset is issued for the MGM connected with SMASH-CLP

- Memo -

NEC Express5800 Series
Express5800/A1080a-S, A1080a-D, A1080a-E

3 Software

This chapter describes software prepared for Express5800/A1080a-S, A1080a-D and A1080a-E.

“Attached Media” (page 506)

This section introduces the software stored in the “NEC EXPRESSBUILDER” attached to the server.

“NEC EXPRESSBUILDER” (page 508)

This section describes the setup tool “NEC EXPRESSBUILDER”.

“Bundled Software for the Server” (page 509)

This section describes the bundled software to be installed in the server.

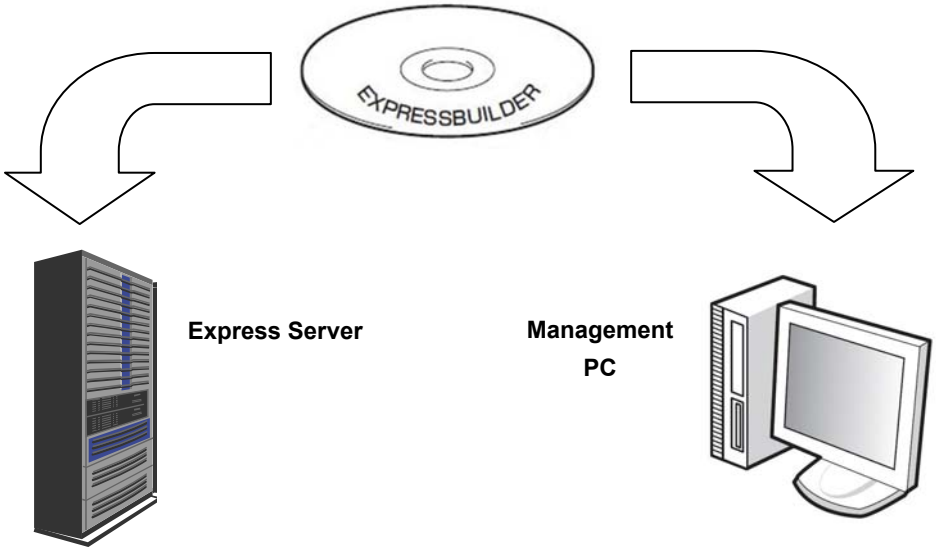
“Bundled Software for Management PC” (page 514)

This section describes the bundled software to be installed in management PC for monitoring and managing the server.

Attached Media

Various types of bundled software, utility, online document, and driver are stored in the attached "NEC EXPRESSBUILDER" for easy setup of the server. It is possible to take advantage of more functions by using the software.

IMPORTANT:
The "NEC EXPRESSBUILDER" may be used for re-installing OS or updating BIOS even after the setting for the server is completed. Keep this NEC EXPRESSBUILDER at hand as it may also be used for maintenance operation at server failure occurrence.



Setup Utility

NEC EXPRESSBUILDER

RAID System Management Utility

Universal RAID Utility

System Management Utility

NEC ESMPRO Agent Extension (for Linux)
NEC ESMPRO Agent (for Windows)
NEC ESMPRO Agent (for Linux)

Setup Utility

NEC EXPRESSBUILDER

System Management Utility

NEC ESMPRO Manager 5.23
NEC ESMPRO Manager (for Linux)

Other

Various Online Documents ("HTML/PDF)

Note: Universal RAID Utility for VM Ware and NEC ESMPRO Manager/Agent for VM Ware are not included.

Using Management PC with CD Drive

Various types of software cannot be installed without a machine equipped with DVD drive since NEC EXPRESSBUILDER is provided as DVD. To install the software in client machine equipped with CD drive, copy it to CD-R, etc. first by following the procedures below.

IMPORTANT:
Only one copy of a CD can be created for the limited purpose of installing the software in the client machine by using this procedure.

1. Set NEC EXPRESSBUILDER to any machine which can read DVD, such as the server.

2. Terminate the Autorun menu when it is started.

3. Copy the following files/folders stored in “NEC EXPRESSBUILDER” DVD to hard disk from Explorer.

```
¥(Root folder)
¦
+---- All from ¥MC8_64 and below
¦
+---- All from ¥MC8R2 and below
¦
+---- All from ¥doc and below
¦
+---- All from ¥win and below
```

4. Copy the files and folders copied in the step 3 to CD-R in the folder structure as it is. Ensure that root folders match when copying.

5. When copying to CD-R is completed, delete all the files and folders copied in the step 3 from the hard disk.

6. Set the CD-R created in the step 4 to a client machine equipped with CD drive.

7. Execute the following file in the CD from Explorer.

   When using Windows Server 2008 Server
   ¥MC8_64¥MC.exe

   When using Windows Server 2008 R2 Server
   ¥MC8R2¥MC.exe

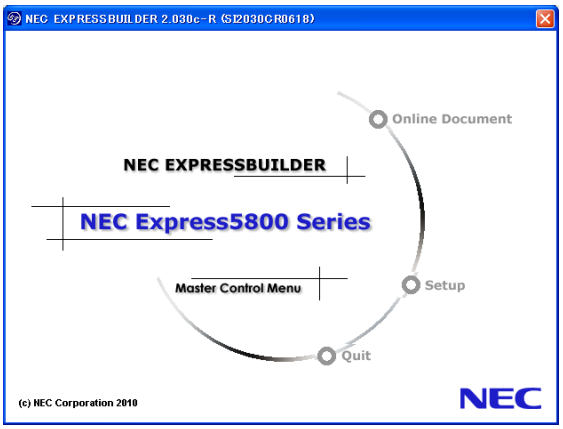
NEC EXPRESSBUILDER

"NEC EXPRESSBUILDER" is software to maintenance of the server.

Menu Started by Autorun (Master Control Menu)

When the attached CD/DVD is set on the computer where Windows XP or Vista is operating, the menu starts automatically by Autorun function.

NOTE:
It may not run automatically depending on the timing when the CD/DVD is set. In that case, select "My Computer" from Explorer and double-click the icon of the set DVD drive.



Various types of bundled software which operate on Windows can be installed and online documents can be browsed from the menu.

NOTE:
Some online documents are provided in PDF format document. To browse these files, Adobe Reader of Adobe Systems, Inc. needs to be installed beforehand. If Adobe Reader is not installed, install it from the internet website of Adobe Systems, Inc. beforehand.

To operate menu, click each item displayed on the screen or use the shortcut menu which appears by right-clicking. Some menu items are grayed out and unable to be selected when they are unexecutable with the system/privilege where the menu operates. Execute the menu item with the appropriate system/privilege.

INPORTANT:
Before removing CD/DVD from the drive, close the menu, online document started from the menu and each tool.

Bundled Software for the Server

This section introduces the software bundled with the server and briefly describes how to install the software. Refer to the online document for details.

NEC ESMPRO Agent (for Windows)

NEC ESMPRO Agent (for Windows) is the application for monitoring server which is to be installed in the server.

NOTE:
Notes on operation are described in the online document "NEC ESMPRO Agent Installation Manual" in the attached "NEC EXPRESSBUILDER" for your reference.

Preparation before Installation

To operate NEC ESMPRO Agent, the driver for NEC specific device needs to be installed and TCP/IP of the target OS and TCP/IP related components need to be set.

To use Windows Server 2008, install the IPMI driver by following the Microsoft® Windows Server 2008 Enterprise/Microsoft® Windows Server 2008 Datacenter Installation Guide.

To use Windows Server 2008 R2, install the IPMI driver by following the Microsoft® Windows Server 2008 R2 Enterprise/Microsoft® Windows Server 2008 R2 Datacenter Installation Guide.

Network Service Setting

Use TCP/IP for protocol. Refer to **"Help"** which can be started from the start menu for TCP/IP setting.

SNMP Service Setting

Set **"public"** or an arbitrary name for community name of trap, and set the IP address of the management PC, etc. in which NEC ESMPRO Manager is installed as the destination for sending traps to.
Refer to the online document "NEC ESMPRO Agent Installation Manual" in "NEC EXPRESSBUILDER".

Installing

Use the attached “NEC EXPRESSBUILDER” DVD to install NEC ESMPRO Agent. After OS of the server is booted, click in the order of [Setup]→ [ESMPRO] →[NEC ESMPRO Agent] from the menu displayed in Autorun. Perform the installation according to the message in the dialog box.

IMPORTANT:
Log in to system with an account with the administrator privilege.

To execute from the CD-ROM on the network, start the DVD from the drive after assigning the network drive. Do not start it from network computer of Explorer.

NOTE:
Update Installation
The following message is displayed when NEC ESMPRO Agent is already installed.

“NEC ESMPRO Agent is already installed.”

Follow the message to process.

Confirming after Installation

Confirm that the installation is performed properly by the following procedure after installing NEC ESMPRO Agent.

1. Reboot the server.
2. Open event log.
3. Confirm that no error regarding the NEC ESMPRO Agent monitoring service is recorded in the event log.

   When error is recorded, the installation is not performed properly. Perform the installation again from the beginning.

NEC ESMPRO Agent (for Linux)

NEC ESMPRO Agent (for Linux) is the application for server monitoring which is to be installed in the server.
Refer to the online document “NEC ESMPRO Agent Installation Manual” stored in the attached “NEC EXPRESSBUILDER” for installation.

Universal RAID Utility

Universal RAID Utility is an application to manage or monitor the following RAID controller.

● NE3104-001 Internal 6GbB SAS RAID Controller

Refer to the "Universal RAID Utility Ver2.1 or later User's Guide" for Windows or "Universal RAID Utility Ver2.3 User's Guide" for Linux included in NEC EXPRESSBUILDER. The manual explains the Universal RAID Utility installation procedure and provides notes on the Universal RAID Utility operation.

Setup using setup program of Universal RAID Utility

You can setup the Universal RAID Utility directly using the setup program of the Universal RAID Utility. Refer to the "Universal RAID Utility Ver2.1 or later User's Guide" for Windows or "Universal RAID Utility Ver2.3 User's Guide" for Linux included in NEC EXPRESSBUILDER for installation operation.

● Windows

You can start the setup program of Universal RAID Utility from [Autorun Menu].
Click to [Setup Software] → [Universal RAID Utility] in [Autorun Menu].
You need to install the following software.

- Microsoft .NET Framework 2.0 or later
- The Runtime component of the Microsoft Visual C++ 2005 SP1

● Linux

You need to run the setup.sh in the install image of Universal RAID Utility.
There is the install image of Universal RAID Utility in the following directory of NEC EXPRESSBUILDER.

/lnx/uraidutl

Management of RAID System using NEC ESMPRO Manager

Using NEC ESMPRO Manager (Ver. 5.2 or later) allows you to view, monitor, and operate the RAID System managed by the Universal RAID Utility. This feature is available on Windows system only.
See the instruction of NEC ESMPRO Manager about system requirements and how to use.

Creating Logical Drive of RAID 6

Please use WebBIOS when you create the Logical Drive of RAID 6 with three Physical Devices.Universal RAID Utility cannot create the Logical Drive of RAID 6 with three Physical Devices

NEC PRODUCT INFO COLLECTION UTILITY

The NEC Product Info Collection Utility is used to collect various system configuration and log information for maintenance or troubleshooting purpose of the server.

This utility can be installed from NEC EXPRESSBUILDER DVD.

NOTE:
Supported Operating Systems of this utility is as follows.
- Windows Server 2003
- Windows Server 2003 x64 Editions
- Windows Server 2008

Installation

You can install this utility according to the following procedure.

1. Insert NEC EXPRESSBUILDER DVD in the optical disk drive after OS starts.
2. Click from the menu displayed with Auto-run in order of [Setup] – [Product Info Collection Utility].
3. The installation of this utility is started. Thereafter, install it according to the message in the dialog box. (In default, it is installed in "System drive: ¥ezclct" folder.)

IMPORTANT:
・Please log-in the system in account with the administrator authority.
・2.5GB or more free space is required for the installation drive.

Using Utility

Execute ¥stdclct¥collect.exe in the installation folder of this utility.

The log folder is made in the above-mentioned folder, and various information on this device is stored in the data compressed file (zip form).

Uninstallation

[Except for Server Core]

Choose [Add or Remove Programs] - [Product Info Collection Utility (Vx.x.x)] from the control panel. Thereafter, uninstall it according to the message in the dialog box.

[For Server Core]

Enter the following command from the command prompt.

Wmic product where name="Product Info Collection Utility" call uninstall

Bundled Software for Management PC

This section describes the bundled software required for configuring “Management PC” to manage the server from network.

NEC ESMPRO Manager

To monitor/manage the computer in which NEC ESMPRO Agent is installed from management PC on the network, use NEC ESMPRO Manager bundled with the server. Refer to the online document or ESMPRO online help for details on how to install in management PC and setting.

NOTE:
Notes and supplementary explanation for using NEC ESMPRO Manager is described in the online document. Refer to the online document “NEC ESMPRO Manager Installation Guide” in the attached “NEC EXPRESSBUILDER” DVD.

- Memo -

NEC Express5800 Series
Express5800/A1080a-S, A1080a-D, A1080a-E

4

Operation and Maintenance

This chapter describes operations and maintenance of the NEC Express 5800/A1080a series.

“Daily Maintenance” (page 517)

This section describes the checking points for daily use, managing files and cleaning the server.

“Troubleshooting” (page 524)

Refer to this section for troubleshooting. This section describes how to confirm cause of troubles and how to troubleshoot them.

“System Diagnostics” (page 565)

This section describes how to use the diagnosis utility dedicated for this server.

“Relocating and Storing” (page 616)

This section describes the procedure and the cautions when relocating or storing the server.

Daily Maintenance

To use the server in best condition, execute the check and maintenance regularly as described below. If any abnormality is found on the server, contact your maintenance service company.

Checking Alerts

Monitor the occurrence of fault by NEC ESMPRO during the system operation.
Especially take note on whether any alert is reported to NEC ESMPRO Manager on the management PC. Check whether any alert is reported on the Operation Window, DataViewer, or AlertViewer of NEC ESMPRO Manager.

Checking Status LEDs

When the power of the server is turned on, or before shutting down to turn off the server, check the LED of hard disks installed in 2.5-inch disk bays and LED on the front of the server. Refer to **“LED Description”** of the document **“Hardware”** for the display and contents of LED. If LEDs show any abnormality of the server, refer to **“Troubleshooting”**. If the failure cannot be removed by referring **“Troubleshooting,”** contact your maintenance service company.

Making Backup Copies

We recommend you make backup copies of your valuable data stored in the hard disk drives of the server on a regular basis. For information on the backup storage devices suitable for the erver and the backup tools, consult with your service representative.

When you have changed the hardware configuration or BIOS configuration, use the Server Web console ([Configuration] → [Save or Restore]) and then " Save Settings " to make a backup copy of the system information.

Also make a backup copy of the RAID System configuration data if your system is in a RAID System configuration. When your hard disk drives have been auto-rebuilt due to a failure, we recommend to make a backup copy of the configuration data. To make a backup copy of the configuration data, refer to the manuals stored in NEC EXPRESSBUILDER.

Cleaning

Clean the server on a regular basis to keep the serer in a good shape.

WARNING



Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injuries. Refer to pages □ to after for details.

- Do not disassemble, repair, or alter the server.
- Do not look into the Optical Disc Drive.
- Disconnect the power plug before cleaning the server.

Cleaning the Server

Wipe the external surfaces of the server in the following procedure:

IMPORTANT:

- **To avoid altering the material and color of the server, do not use volatile solvents such as thinner and benzene to clean the server.**
- **The power receptacle, the cables, installed devices, and/or inside of the server must be kept dry. Do not moisten them with water.**

1. Make sure that the server is powered off (the POWER LED is unlit).

2. Unplug the power cord of the server from a power outlet.

3. Wipe off the dust from the power cord plug with a dry cloth.

4. Soak a soft cloth in a neutral detergent that is diluted with cold or lukewarm water, and squeeze it firmly.

5. Rub off stains on the server with the cloth prepared in Step 4.

6. Soak a soft cloth in water, squeeze it firmly, and wipe the server with it once again.

7. Wipe the server with a dry cloth.

8. Wipe off dust from the fan exhaust opening on the rear of the server with a dry cloth.

Cleaning the Keyboard/Mouse

Make sure that the server and peripheral devices are powered off (the POWER/SLEEP LED is unlit), and then wipe the keyboard surface with a dry cloth.
The mouse operation depends on the degree of smoothness of the internal ball rotation. To keep the mouse ball clean, use the mouse in a place with little dust. Follow the steps below regularly to clean the mouse:

1. Make sure that the server is powered off (the POWER LED is unlit).

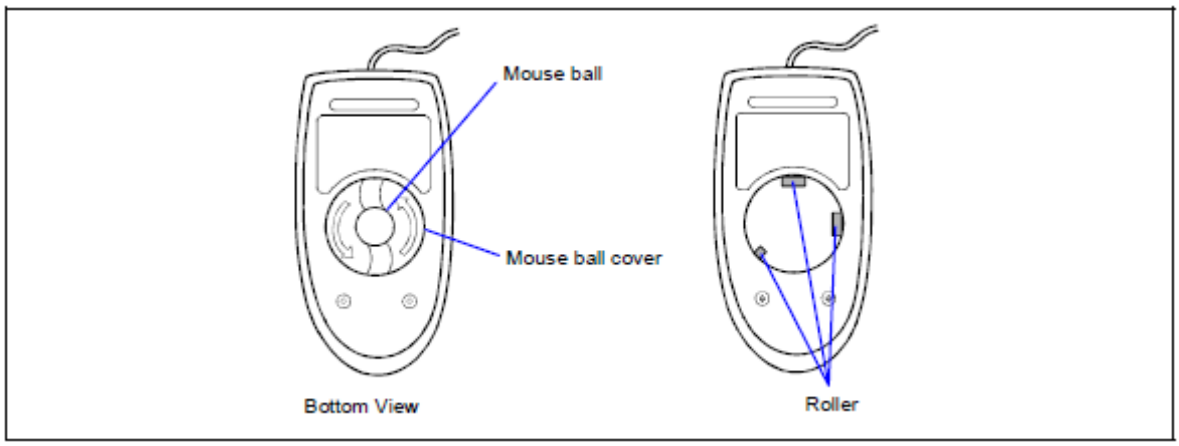
2. Turn the mouse upside down, and rotate the mouse ball cover counterclockwise to remove it. Take out the ball from the mouse.

3. Wipe the mouse ball with a dry soft cloth.
   Or, soak a soft cloth in neutral detergent that is diluted with cold or lukewarm water, and squeeze it firmly. Rub off stains on the mouse ball.

4. Wipe three small rollers inside the mouse with a cotton swab soaked with alcohol.

5. Put the mouse ball back into the mouse.
   If the mouse ball or roller is wet in Step 3 or 4, be sure to fully dry it before putting the mouse ball in the mouse.

6. Place the mouse ball cover, and rotate it clockwise until it is locked.



Cleaning CD/DVD

A dusty CD/DVD-ROM or dust-accumulated tray causes the device to fail to read data correctly. Follow the procedure below to clean the tray and CD/DVD-ROM regularly:

1. Make sure that the server is powered off (the POWER LED is unlit).

2. Press the tray eject button on the front of the DVD drive. The tray comes out.

3. Hold the CD/DVD-ROM lightly and take it out from the tray.

IMPORTANT:
Do not touch the signal side of the CD/DVD-ROM with your hand.

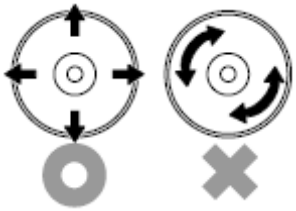
4. Wipe the tray with a dry soft cloth.

IMPORTANT:
Do not wipe the lens of the DVD drive. Doing so may damage the lens and may cause a malfunction of the drive.

5. Gently push the tray to retract it to the tray.

6. Wipe the signal side of the CD/DVD-ROM with a dry soft cloth.

IMPORTANT:
Wipe CD/DVD-ROMs from the center to the outside.
Use only CD/DVD-ROM cleaner if necessary. Cleaning a CD/DVD-ROM with record spray/cleaner, benzene, or thinner causes damage to the CD/DVD-ROM contents. At worst, inserting the CD/DVD-ROM into the server may cause failure.



Console-less Setup

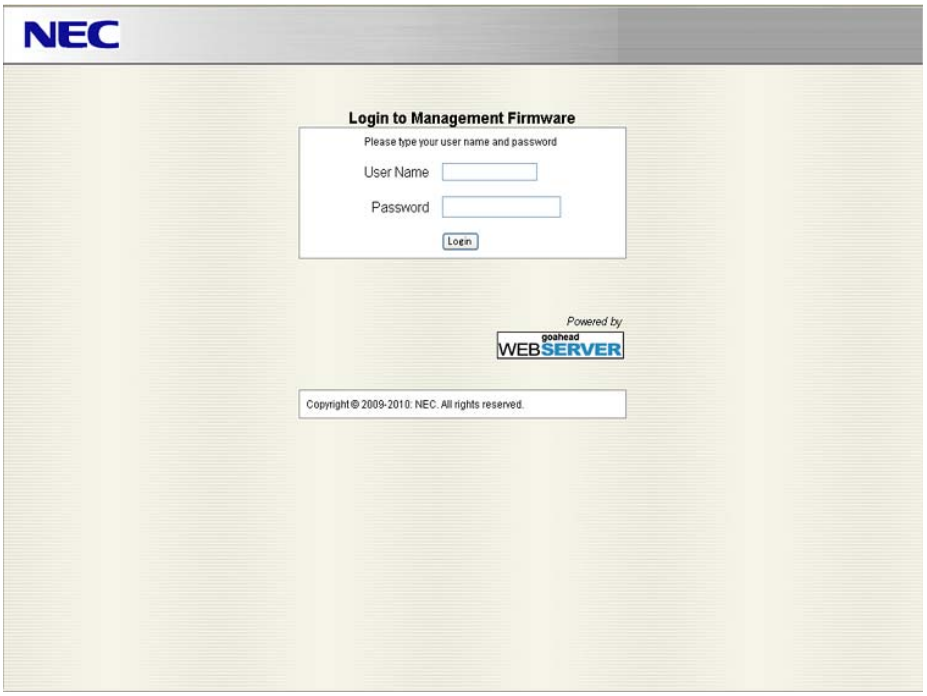
The Maintenance Tool has Console-less function enables to access remotely from a management computer (management PC) to set up each items when no console such as keyboard is connected to the server.

Starting the Function

The console-less function starts up by specifying IP address (LAN for maintenance) of the System Web Console, the Server Web Console and the Resource Web Console in the http address in a web browser of a management PC. Enter the login name and the password on the displayed login screen to transit to the first displayed screen.

http://xxx.xxx.xxx.xxx/

xxx.xxx.xxx.xxx is an IP address of the connecting target Web Console.



The login name and the password on the login screen can be added or edited on the User Management function of the Console-less function. The factory default of the login name and the password are as follows:

Login name: Administrator
Password : Administrator

Starting up System Web Console

The factory default IP address of LAN for maintenance is 192.168.1.1.

Starting up Server Web Console

The factory default IP address of LAN for maintenance differs as follows depending on the model types.

A1080a-S / A1080a-E
Server 1: 192.168.1.100

A1080a-D
Server 1: 192.168.1.100
Server 2: 192.168.1.101

Starting up Resource Web Console

The factory default IP address of management LAN is 192.168.1.200.

IMPORTANT:
The following IP address cannot be used as they are reserved in the server.
• 172.24.0.0/16 (172.24.0.0 - 172.24.255.255)
• 172.16.0.0/16 (172.16.0.0 - 172.16.255.255)

IMPORTANT:
The setting change might become necessary as IP address of LAN for maintenance responds to customer's network environment.

Troubleshooting at Failure

Confirm the description in this section when a failure occurs. When a relevant failure is found, follow the description to deal with it properly.

Identifying the Failure

When a failure occurs, use NEC ESMPRO Manager to identify the failure area and to judge if the failure is caused by hardware or by software.

When the failure point is found and the cause is confirmed, replace the failure parts or recover the system.

It is convenient to use NEC ESMPRO Manager to judge if the failure is caused by hardware or software.

Error Messages

Error messages are notified when a failure occurs on the server. This section describes the error message types.

Error Message during POST

If a failure is detected at POST, self-diagnostic function, which runs automatically at powering on the server, an error message appears on the screen of display device (In some cases, troubleshooting for the failure may be displayed). Refer to **"POST(Power On Self-Test)"** in **"Basic Operation"** of **"Hardware"** for the displayed messages, contents and troubleshooting.

Error Message by LED

The LEDs on the front/rear of the server and near the handles of the hard disk drives notify the users of various status of the server by turning on, blinking or turning off, with patterns or colors. When a failure occurs, check the LED indication. Refer to **"LED Description"** in **"Name of Each Part"** of **"Hardware"** for the LED indication and the meanings.

Error Message by Server Management Application

If the server management tools such as NEC ESMPRO Agent/Manager or RAID system management utility is installed on the server or the management PC, contents of failure appears on the display of the management PC or the server when a failure occurs.

Refer to **"Software"** or online document for installing or operating each application.

Online help elaborates system configuration using NEC ESMPRO and the details of each setting.

Troubleshooting

When the server fails to operate as expected, see the following to find out your problem and follow the instruction given before asking for repair.
If the server still fails to operate successfully after solving your problem, take a note on the on-screen message and contact your service representative.

About This Server

Unable to display information on the LCD of EXPRESSSCOPE® Monitor.

■ Is AC power supplied to the system properly?
→ Check the power cable is connected to the PDU (Power Distribution Unit) or to the UPS (Uninterruptible Power Supply) matching the power specification of the server.

→ Use the power cable bundled in the server. Check also whether the cover of the power cable is broken or the plug is bent.
If the power cable or the plug is damaged, replace the cable.

→ Check the switches and the connecting target breaker of PDU (Power Distribution Unit) and UPS (Uninterruptible Power Supply) are powered on.

→ When the server is connected to the UPS (Uninterruptible Power Supply), check the power of the UPS is on and the power is supplied from the UPS. Refer to the attached description of the UPS for more details.

→ Is all the power supply unit LED blinking in green?
If there is no problem on the AC power supply or on the connection of the power cable, there may be a problem with the power cable. Replace the power cable in such a case.

Unable to power on the server.

■ Is the power of the server turned on within one minute after supplying the power to the server?
→ More than one minute after the power supply started to the server, confirm the LCD of EXPRESSSCOPE® Monitor is properly displayed. Then turn on the server.

Unable to connect to Web console.

■ Is network cable connected?
→ Check how the network cable is connected. Check also the used cable is compliant with the network interface standard.

■ Is network configuration proper?

→ Refer to **"EXPRESSSCOPE® Monitor"** of **"Hardware"** to check the network configuration.

■ Is management PC set as the specified environment and the configuration?
→ Refer to **"Setup of Management PC"** and check the environment and configuration of the management PC.

Unable to display on VGA console.

■ Is the console powered on?
→ Check the connection of the console power cable and if the power switch is on.

■ Is the console connected to the server?
→ Check if the console is connected to the VGA port of the server. Check also the console is connected to the management module of the server that the screen is to be displayed.

■ Is power save function available on the OS power setting of the monitor?
→ Depending on the OS environment, the power of the monitor may turn off after a certain interval. Operate the keyboard or mouse to check if the console is displayed.

Unable to access the hard disk drive.

■ Is the hard disk drive applicable to the server?
→ Only the NEC-authorized hard disk drives are guaranteed for operation.

■ Is the hard disk drive properly installed?
→ Ensure to push the hard disk drive carrier all the way into the server, and lock the carrier with its lever. The hard disk is connected to the internal connector only when it is completely installed.

■ Is the virtual disk created?
→ It is required to create the virtual disk for the internal disk of the server.
Configure the disk array.

■ Is the disk partition created? Is the hard disk drive formatted?
→ Check the hard disk status and create the disk partition if it is not created yet.

Unable to start OS.

■ Is CD/DVD media inserted in the DVD drive?
→ Eject the CD/DVD media from the DVD drive, and then restart the server.

■ Is OS created on other server attempted to be booted?
→ Do not use OS disk drive created or used on other server as it is. If such disk is required to use on this server, first back up the necessary data, create the virtual disk as the new disk drive, install the OS, and then restore the backup data to use the disk.

Unable to operate the keyboard or mouse properly.

■ Is the cable properly connected?
→ Check if the cable is connected to the USB port of the server.

■ Is BIOS set properly?
→ USB port setting can be changed to Enable/Disable on the BIOS menu. Check the USB port to be used is enabled on the BIOS setup.

■ Is the driver installed?
→ Refer to the description attached to the used OS to check the drivers of keyboard and mouse are installed. The settings of keyboard and mouse can be changed depending on the used OS. Refer to the description attached to the used OS to check the settings are proper.

■ Is the USB port on the front of the server set available for the server to be used?
→ On the A1080a-D model, the setting of USB port on the front of the server can be changed to use either of the server 1 or server 2. Refer to **"EXPRESSSCOPE® Monitor"** of **"Hardware"** to set the authority of the USB port to the server to operate.

Unable to access to the internal device or external device (Does not operate properly).

■ Is the cable connected properly?
→ Check if the interface cable or the power cable is connected properly. Check also the connecting order is proper.

■ Is the order of powering on the devices correct?
→ When the external device is connected, first power on the external device and then power on the server.

■ Is the driver installed?
→ The dedicated device driver may be required depending on the connected device purchased as option.
Refer to the description attached to the device and install the required driver.

■ Is BIOS set properly?
→ When the PCI device is connected, the PCI slot setting can be changed to enable/disable on the BIOS menu. Check the setting of the PCI slot to be used is enabled.
Refer to **"BIOS Setup"** of **"Hardware."**

Unable to access to the DVD drive.

■ Is the CD/DVD media inserted in reverse?
→ Eject the CD/DVD media from the tray and set the media again with the top label facing upward.

■ Is the CD/DVD media dirty or scratched?
→ Check if there is no finger print, taint or scratch on the disk surface of the CD/DVD media. If there is taint, clean the disk surface of the CD/DVD media. If the media still cannot be loaded after the cleaning, replace another loadable CD/DVD media to check if it can be loaded.

Unable to power off at the blue screen.

→ When turning off the server at the blue screen, keep pressing EPO switch of the management module on the rear of the server for more than 5 seconds.

Unable to connect to network.

■ Is the cable connected?
→ Check how the network cable is connected. Check also the used cable is compliant with the network interface standard.

■ Are the setup of the protocol and services completed?
→ Install the dedicated network driver. Check also the protocol setting up of TCP/IP, the transmitting speed setting and each service are properly set.

Unable to install OS.

■ Is there any data remaining on the disk to install OS?
→ The OS installation may fail if some data is remaining on the created virtual disk. Install the OS again after executing "**Slow Initialize"** on Web BIOS.

■ Is the disk recognized?
→ Virtual disk needs to be created for the internal disk of the server.
Configure the disk array.

Unable to check hard disk consistency.

■ Is the RAID level of the logical drive RAID0? Or is the RAID level hot spare disk?
→ RAID0 and hot spare disk cannot be checked consistency since there is no redundancy.

Unable to end POST.

■ Is memory properly installed?
→ For **A1080a-S/A1080a-D** model, at least one set of two DIMMs must be installed in the processor memory module.
For **A1080a-E** model, at least one set of four DIMMs must be installed in the processor memory module for operation.

■ Is large capacity memory installed?
→ Memory check may require time depending on the installed memory size. Wait until the memory check is completed.

■ Is keyboard or mouse operated immediately after starting up the server?
→ If keyboard or mouse is operated immediately after the server starts up, POST may wrongly detect it as the failure of keyboard controller and stop its process. In such a case, restart the server. Ensure not to operate keyboard or mouse just after the restart of the server until the message such as BIOS booting one is displayed.

■ Are the installed memory or PCI device compatible with the server?
→ Only the NEC-authorized devices are guaranteed for operation.
Access to the internal device or external device fails (Or unable to operate properly).

■ Is the cable properly connected?
→ Check if the interface cable or power cable (or power cord) is connected properly. Check also the connecting order is appropriate.

■ Is the order of powering on correct?
→ When the external device is connected, first power on the external device, and then power on the server.

■ Is the driver installed?
→ The dedicated device driver may be required depending on the option of the connected device. Refer to the description attached to the device and install the required driver.

■ Is the setting of BIOS correct?
→ When the PCI device is connected, set the interruption of the PCI device and other detailed setting on the BIOS setup utility of the server (No change of setting is normally required for PCI device, while some boards may require special setting. Refer to the attached manual of the PCI board for the proper setting).

→ The devices connected to serial ports may require the setting of I/O port address or motion mode. Refer to the manual attached to the device for proper setting.
<Menu to be checked: **"Advanced → Super I/O Configuration"**>



Unable to access to CD/DVD media.

■ Is the media properly set on the tray of the DVD drive?
→There is a CD/DVD holder tray. Check the media is held firmly.

■ Is the CD/DVD media available to use on this server?
→ The CD/DVD media dedicated for Macintosh cannot be used on this server.

Unable to access to the device connected to USB.

■ Is the setting of BIOS correct?
→ The USB device can be set to disabled on the BIOS setup utility of the server.
Check the setting on the BIOS setup utility. The internal DVD drive is connected to the USB.
<Menu to check: **"Advanced → USB Configuration →Disable USB Port"**>

Unable to access CD-R disk.

■ Is the CD-R disk set on the wrong side?
→ Eject the CD-R disk from the tray and set the disk again with the top label facing upward.

■ Is the CD-R disk dirty or scratched?
→ Check if there is no finger print, taint or scratch on the disk surface of the CD-R. If there is taint, clean the disk surface of the CD-R disk .If the disk still cannot be loaded after the cleaning, replace another loadable CD-R disk to check if it can be loaded.

■ Is the CD-R disk closed?
→ Check the disk if the disk can be loaded after closing the current session or closing the disk.

■ Is the CD-R written with a writing software and CD-R disk that are appropriate for the writing drive?
→ If the combination of writing drive, writing software and CD-R Disk is not appropriate, the DVD drive of the server may fail to read.

Unable to access hard disk drive.

■ Is the hard disk drive compatible to the server?
→ Only the NEC-authorized hard disks are guaranteed for operation.

■ Is the hard disk drive installed properly?
→ Ensure to push the hard disk drive carrier all the way into the server, and lock the carrier with its lever. The hard disk is connected to the internal connector only when it is completely installed.

Unable to recognize the server from the management PC.

■ Is LAN cable connected properly?
→ Check the status of the cable connected to the LAN port for management. Sensors on the server can be referred properly only when the cable is connected properly.
Check also the cable is not connected to the LAN connector of the server by mistake.

■ Is IP address duplicated?
→ If the same IP address exists on the same network, it is not recognized correctly. Change the IP address.

■ Is connection restricted with firewall or gateway?

→ Connection may be restricted by firewall or other.
If the connection problem is solved after directly connecting with the client PC with LAN cross cable, check again the firewall and gateway.



Forgot login name/password for the Remote Management Function on the web browser.

→ Execute **"Restore Defaults"** on the **"LCD of EXPRESSSCOPE® Monitor"**. All the SG settings of the firmware is initialized. The password for the Web console is also initialized.

Windows

Warning of the following contents may be logged to the system event log when starting up Windows Server 2008 R2 system.

Event ID: 27
Source: e1qexpress
Type: Warning
Description: Intel(R) 82576NS Gigabit Ethernet Controller
Network link has been disconnected.

→ When the above is logged upon startup of the system or applying the system update, there is no problem on system operation.

Following system event log may be logged when Windows Server 2008 R2 is installed.

Event ID: 134
Source: Microsoft-Windows-Time-Service
Type: Warning
Description: NtpClient was unable to set a manual peer to use as a time source because of DNS resolution error on ' '. NtpClient will try again in 3473457 minutes and double the reattempt interval thereafter.

→ There is no problem on system operation.

Following warning may be logged in the application event log at updating the system when Windows Server 2008 R2 is installed.

Event D: 63
Source: WMI
Type: Warning
Description: A provider, Ncs2, has been registered in the Windows Management Instrumentation namespace, Root¥IntelNCS2, to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not impersonate user requests.

→ There is no problem on system operation.

Following application event log may be logged in the application event log when Windows Server 2008 R2 is installed.

Event ID: 1534
Source: Microsoft-Windows-User Profiles Service
Type: Warning
Description: Profile notification of event Create for component {56EA1054-1959-467f-BE3B-A2A787C4B6EA} failed.

→ There is no problem on system operation.

Event ID: 1015
Source: Microsoft-Windows-Security-SPP
Type: Warning
Description: Detailed information of HRESULT
Returned hr = 0xC004F022, original hr = 0x80049E00

→ There is no problem on system operation if it is not logged after the Activation.

Following warning may be logged in the system event log if OS is rebooted with recognition of iSCSI while Windows Server 2008 R2 is operating.

Event ID: 1
Source: iScsiPrt
Type: Error
Description: Initiator failed to connect to the target. Target IP address and TCP Port number are given in dump data.

→ Refer to the following Microsoft website for more details.
http://support.microsoft.com/kb/976072/ja

Following warning may be logged if shadow copy import is executed to the server containing write-protected volume while Windows Server 2008 R2 is operating.

Event ID: 8193
Source: VSS
Type: Error
Description: Volume Shadow Copy Service Error>Volume Shadow Copy Service Error: Unexpected error calling routine
IOCTL_DISK_GET_DRIVE_LAYOUT_EX(_1000&rev_1000#1&7f6ac24&0&3030303030303031303030303032383030304636#{ GUID })-
hr = 0x80070013, this media is write-protected.

Event ID: 12289
Source: VSS
Type: Error
Description: Unexpected error
DeviceIoControl(istorage_1000&rev_1000#1&7f6ac24&0&3030303030303030303130303030303032383030304636#{ GUID }#0000000000007e00#{ GUID }-00000000000002B8, x00560000,0000000000000000,0,00000000004866D0,4096,[0])
hr = 0x80070013, this media is write-protected.

→ Refer to the following Microsoft website for more details.
http://support.microsoft.com/kb/2003016/ja

Following warning may be logged if shadow copy import is executed to the server containing floppy drive while Windows Server 2008 R2 is operating.

Event ID: 12289
Source: VSS
Type: Error
Description: Volume Shadow Copy Service Error: Unexpected error DeviceIoControl({GUID} -00000000000002B0,0x00560000,0000000000000000,0,00000000001EC0E0,4096,[0]) hr = 0x80070001, incorrect function.

→ Refer to the following Microsoft website for more details.
http://support.microsoft.com/kb/2003968/ja

Following system event log may be logged if Windows Server 2008 is installed.

Event ID: 5
Source: storflt
Type: Warning
Description: The Virtual Storage Filter Driver is disabled through the registry. It is inactive for all disk drives.

Event ID: 134
Source: Microsoft-Windows-Time-Service
Type: Warning
Description : NtpClient was unable to set a manual peer to use as a time source because of DNS resolution error on 'time.windows.com,0x9'. NtpClient will try again in 15 minutes and double the reattempt interval thereafter.
Error: Hote inconnu. (0x80072AF9)

Event ID: 263
Source: PlugPlayManager
Type: Warning
Description: The service 'ShellHWDetection' may not have unregistered for device event notifications before it was stopped.

Event ID: 7000
Source: Service Control Manager
Type: Error
Description: Parallel port driver service failed to start due to the following error:
The service cannot be started, either because it is disabled or because it has no enabled devices associated with it.

Event ID: 15016
Source: Microsoft-Windows-HttpEvent
Type: Error
Description: Unable to initialize the security package Kerberos for server side authentication. The data field contains the error number.
→ There is no problem on system operation.

Following application event may be logged if Windows Server 2008 is installed.

Event ID: 63
Source: Microsoft-Windows-WMI
Type: Warning
Description: A provider, Ncs2, has been registered in the Windows Management Instrumentation namespace, Root¥IntelNCS2, to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not impersonate user requests.
A provider, IntelEthernetDiag, has been registered in the Windows Management Instrumentation namespace, Root¥CIMv2, to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.
A provider, WmiPerfClass, has been registered in the Windows Management Instrumentation namespace, root¥cimv2, to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.

Event ID: 1020
Source: EvntAgnt
Type: Error
Description: Error processing registry parameters. Extension agent terminating.

Event ID: 1054
Source: Security-Licensing-SLC
Type: Warning
Description: Component error. hr=0x80049E00, [4, 3]

Event ID: 2019
Source: EvntAgnt
Type: Error
Description: SNMP Event Log Extension Agent did not initialize correctly.

Event ID: 3001
Source: EvntAgnt
Type: Warning
Description: None Log file not positioned at end.

Event ID: 3003
Source: EvntAgnt
Type: Warning
Description: Error positioning to end of log file -- can't get oldest log record. Handle specified is 17891340. Return code from GetOldestEventLogRecord is 223.
→ There is no problem on system operation.
Following error or warning may be logged when Windows Server 2008/Windows Server 2008 x64 Editions system is starting up.

Warning of the following contents may be logged to the system event log when starting up Windows Server 2008 system.

Event ID: 11
Source: iANSMiniport
Type: Warning
Description: The following adapter link is not connected:
Intel(R)PRO/1000 ~

Event ID: 13
Source: iANSMiniport
Type: Warning
Description: Intel(R)PRO/1000 is invalid in the team.

Event ID: 16
Source: iANSMiniport
Type: Warning
Description: “Team Name”: the last adapter lost the link. The team network lost the connection.
→ When the team is set on the network adapter, the event log above is recorded at starting up the system. However, there is no problem in the operation of LAN driver.
Following system event log may be recorded if Windows Server 2008 is installed.

Following system event may be logged if Windows Server 2008 is installed.

Event ID: 10
Source: VDS Dynamic Provider
Type: Warning
Description: The provider failed while storing notifications from the driver. The Virtual Disk Service should be restarted.
hr = 80042505
→ Refer to the following Microsoft website for more details.
http://support.microsoft.com/kb/948275/ja
Following system event log may be recorded if Windows Server 2008 is installed.
Source: Microsoft-Windows-Security-Licensing-SLC.

Event ID: 1021
Source: Microsoft-Windows-User Profiles Service
Type: Warning
Description: SLUINotify service has failed to start. hr=0x80070424
→ Activate the software from the activation wizard.

Event ID: 1534
Description: Profile notification of event Create for component {56EA1054-1959-467f-BE3B-A2A787C4B6EA} failed, error code is -2147023591.
→ It may be logged temporarily at logging on, but there is no problem on system operation.

Fatal of the following contents may be logged to the system event log when restoring by Windows Server Backup and restarting the system.

Event ID: 41
Source: Microsoft-Windows-Kernel-Power
Type: Fatal
Description: The system has restarted before shutting down the system normally.
This error may occur because of stopping the system response, the system crush or the unexpected power off.
→ Refer to the following Microsoft website for more details.
http://support.microsoft.com/kb/979237/ja

System time lags.

→ System time may lag if no server to adjust time such as NTP (Network Time Protocol) is used. Use an NTP server or disable Windows Time Service in this case.

STOP error occurs.

→ Blue screen appears and OS dump begins. The collected OS dump is expected to be analyzed by a person in charge of the software.
The server is rebooted after collecting the dump. Collect the event log of Windows and ask for analysis in addition to the dump analysis.

Master Control Menu

Unable to read online document.

■ Is Adobe Acrobat Reader installed properly?
→ A part of online document is provided in PDF file format. Install the Adobe Acrobat Reader beforehand.

■ Is the system OS Windows XP SP2?
→ If the online document is going to be displayed on the Windows XP SP2, the following information bar may be displayed.
"To help protect your security, Internet Explorer has restricted this file from showing active content that could access your computer. Click here for options..."

Display the online document with the following steps in this case.

1. Click the Information bar. A shortcut menu is displayed.
2. Select **"Allow Blocked Content"** on the shortcut menu.
   Security Alert dialog box is displayed.
3. Click **"OK"** on the dialog box.

Menu items are not displayed.

■ Is the system Windows XP or later?
→ Master Control Menu operate only on Windows XP and later.

■ Is "Shift" key pressed?
→ The Autorun feature is cancelled when loading NEC EXPRESSBUILDER DVD with pressing **"Shift"** key

■ Is the system in the proper status?
→ The menu may not appear depending on the system registry setting or the timing to set NEC EXPRESSBUILDER DVD. In such a case, select **"My Computer"** from the Explorer and double click the DVD drive icon that the media is set.

Menu items are displayed in English.

■ Is the system environment proper?
→ The menu is displayed in English if the OS is English version.
Operate Master Control Menu on the Japanese version of OS to display the Japanese menu.

Menu items are grayed out.

■ Is the system environment proper?

→ The menu items are grayed out when the used environment does not match the software installation environment, such as logging in as a user without Administrator privilege or operating the program on the device other than the server.
First log in with proper environment and proper user privilege, and then operate the program again.

RAID System and RAID Controller

When the server configuring RAID system does not operate properly, or when the management utility does not operate properly, check the following points. If there is any corresponding items, follow the procedure.

Unable to install OS.

■ Is RAID controller configured?
→ Configure the RAID controller properly with using Web BIOS.

Unable to start OS.

■ Is BIOS setting of the RAID controller changed?
→ Set BIOS setting of the RAID controller properly with using Web BIOS.

■ Is RAID controller recognized on POST?
→ Check the RAID controller is connected properly first and power on the server.
→ If the RAID controller is connected properly but not recognized, the RAID controller may have a failure. Contact the maintenance service company or the reseller on this issue.

Unable to rebuild.

■ Is the capacity of the hard disk drive to rebuild sufficient?
→ Prepare the same capacity hard disk drive as the failed disk drive.

■ Is the new hard disk drive used ?
→ Remove the failed hard disk drive and insert the new hard disk drive.

■ Is the logical drive RAID0?
→ Rebuild is unavailable for RAID0 as it has no redundancy. Replace the hard disk drive that became “FAIL,” create configuration information again, initialize the hard disk drive, and then restore the hard disk drive.

Unable to execute auto rebuild.

■ Is there sufficient duration when replacing the hard disk drives (Hot swapping)?
→ To function the auto rebuild, 90 seconds or more duration is required between removing and inserting the hard disk drive.

■ Is the new hard disk drive used ?
→ Remove the failed hard disk drive and insert the new hard disk drive.

Hard disk drive became “Fail.”

→ Contact the maintenance service company or the reseller for this issue.

Unable to check consistency.

■ Is logical drive “Degraded”?
→ Replace the failed hard disk drive and execute the rebuild.

■ Is the RAID level of the logical drive RAID0?
→ A consistency check cannot run as RAID0 has no redundancy.

NEC ESMPRO

NEC ESMPRO Agent (Windows version)

→ Refer to the online document “NEC ESMPRO Agent Installation Manual” included in the attached “NEC EXPRESSBUILDER” DVD for troubleshooting and other supplementary information.

NEC ESMPRO Agent (Linux version)

→ Refer to the online document “NEC ESMPRO Agent Installation Manual” for detailed usage and other supplementary information.

NEC ESMPRO Manager

→ Refer to the online document NEC ESMPRO Manager Installation Guide(for windows) / (for Linux) for troubleshooting and other supplementary information.

Failure Analysis Procedure

As described in the Chapter 2 **"Hardware,"** the server is configured with CRU and FRU which are replaceable modules/units in the installation environment of the customer.

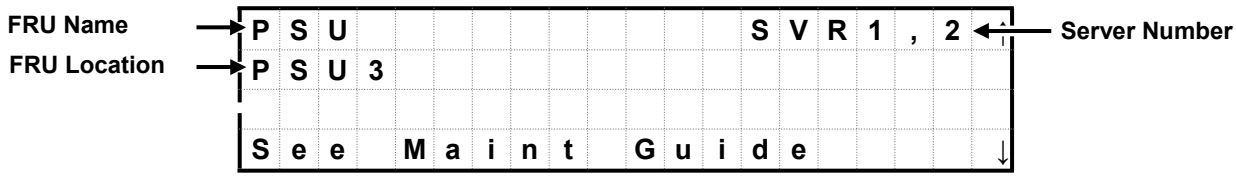
This section describes the analyzing procedure of CRU (Customer Replacement Unit).

When the status LED of EXPRESSSCOPE® Monitor lights other than green during the server operation, except when the power is off, the status indicates the server has failure.

In this case, select **"View Faults"** in the EXPRESSSCOPE® Monitor to check if there is any failure or failure indication.

FRU displayed on **"View Faults"** is the highest possibility (or suspected) parts of the cause of failure.

Example) The following example shows the FRU name as PSU, the power supply unit. From the FRU Location, the power supply unit of the slot 3 is the most suspected one.



- **FRU Name : PSU** …Power Supply Unit
- **Server Number : SVR1,2** …Indicating the part belongs to the Server 1 and the Server2 (shared) (**A1080a-D** model only).
- **FRU Location : PSU3** …Indicating the position is the Power Supply Unit #3.

If the FRU Name displayed on **"View Faults"** corresponds any of the following four types, the parts can be replaced by customer. Refer to **"Hardware"** for the replacement procedure.

- **CRU (Customer Replacement Unit) List**

No.	Abbreviated name	Name	Described name on this guide
1	HDD	Hard Disk Drive	Hard disk drive
2	PSU	Power Supply Unit	Power supply unit
3	DVD	Digital Versatile Disk	DVD drive
4	FAN	FAN Module	FAN module

Further analysis is required if nothing is shown on **"View Faults"** of EXPRESSSCOPE® Monitor, or if the displayed abbreviation is not on the above list.

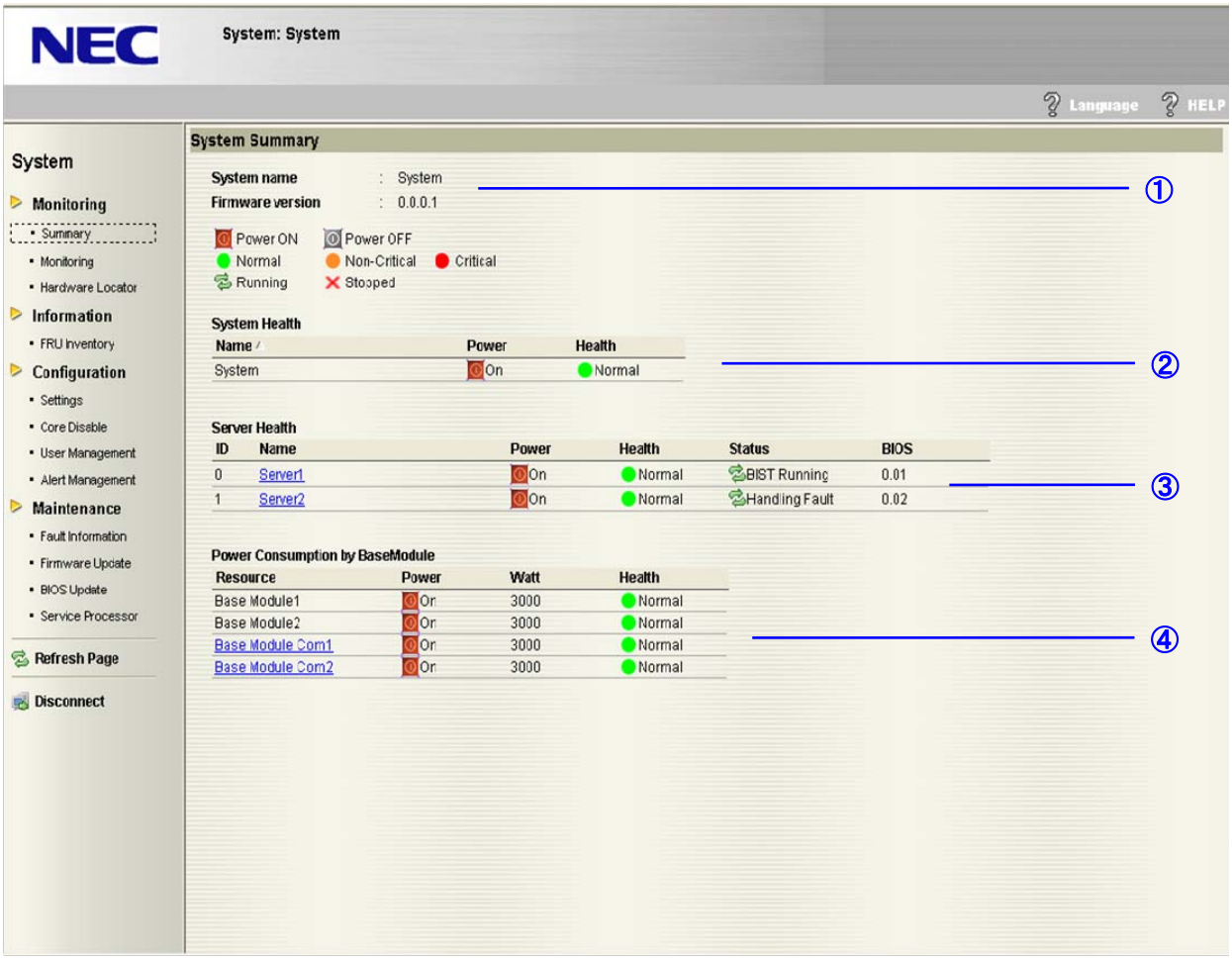
If nothing is shown on **"View Faults"** of EXPRESSSCOPE® Monitor, or if the displayed abbreviation is not described on the above list, EXPRESSSCOPE® Monitor itself may have a failure. In such a case, follow the checking procedure below.

In this case, check the operation status and the suspected server status on system web console.

1. On the System WEB Console, click **"Summary"** in **"Monitoring"**, listed on the left menu. Confirm the operating status and the suspected failure Server from the **System Summary** screen. Confirm the **System Health** and **Health** status of **Server Health** to determine the faulty status.

   <Items to be confirmed>
   - ✔ : Firmware version
   - ✔ : System Health
   - ✔ : Server Health
   - ✔ : Power Consumption by BaseModule

2. Collect the necessary information on the **System Summary** screen since information listed here needs to be collected in the next procedure:



< Description>

(1) Name of the system and firmware version

- ✓ System name : Name of the system is displayed. N/A is displayed when there is no name.
- ✓ Firmware version : Management firmware version.

(2) System Health: Status of system

- ✓ Name : Name of the system is displayed. N/A is displayed when there is no name.
- ✓ Power : DC power status is displayed.

Display Value	Description
Off	DC power of all Servers is OFF
On	DC power of at least one Server is ON

- ✓ Health : Failure status is displayed. This indicates the worst status among all the Servers, including the spare server.

Display Value	Description
Normal	No failure occurred, or only Correctable Error occurred.
Non-Critical	Recoverable Error occurred. Maintenance of the system is required.
Critical	Fatal error occurred. Maintenance of the system is required.

(3) Server Health: Status of server

- ✓ ID : [0] indicates Server 1 (including MGM1). [1] indicates Server 2 (including MGM2).
- ✓ Name : Name of the server is displayed. N/A is displayed when there is no name.
- ✓ PowerServer : DC power status of Server

Display Value	Description
Off	DC power of the relevant Server is OFF.
On	DC power of the relevant Server is ON.

- ✓Health : Failure status is displayed. This indicates the status of the relevant server.

Display Value	Description
Normal	No failure occurred, or only Correctable Error occurred.
Non-Critical	Recoverable Error occurred. Maintenance of the Server is required.
Critical	Fatal Error occurred. Maintenance of the Server is required.

- ✓ Status : Operating status of the server

Display Value	Description
Stopped	Server stopped (DC OFF)
BIST Running	BIST Running status
Initializing	Booting up (loading) status

EFI Manager Booted	EFI Manager Booted status
OS or T&D Starting	OS or T&D Starting status
T&D Running	T&D Running status
OS Running	OS Running status
Stopping	Shutting down (loading) status
Handling Fault	Handling Fault status
Handling DP	Handling DP status

* The following describes the relationship between status of System Health and Server Health, and the suspected failure.

	System	**Server 1**	**Server 2**	**Main Console to Check Log, etc**	**Possible Failure**
Health	Normal	-(Normal)	-(Normal)	-	Normal
	Other than Normal	Normal	Normal	System	Failure outside the server
			Other than Normal	Server2	Failure within Server 2 (Only A1080a-D)
		Other than Normal	Normal	Server1	Failure within Server 1
			Other than Normal	Server1 and Server2	Common failure on Server 1 and Server 2, or each server failure. (Only A1080a-D)

(4) Power Consumption by BaseModule: Status of Resource (BM)

✓ Resource : BaseModule (BM) name

Display Value	**Description**
Base Module1	On Server1 side
Base Module2	On Server2 side
Base Module Com1/2	Common parts (FAN, LCD, DVD, USB)

✓ Power : DC power status of the BM

Display Value	**Description**
Off	DC power of the relevant server is OFF.
On	DC power of the relevant server is ON.

✓ Wattage : Power consumption

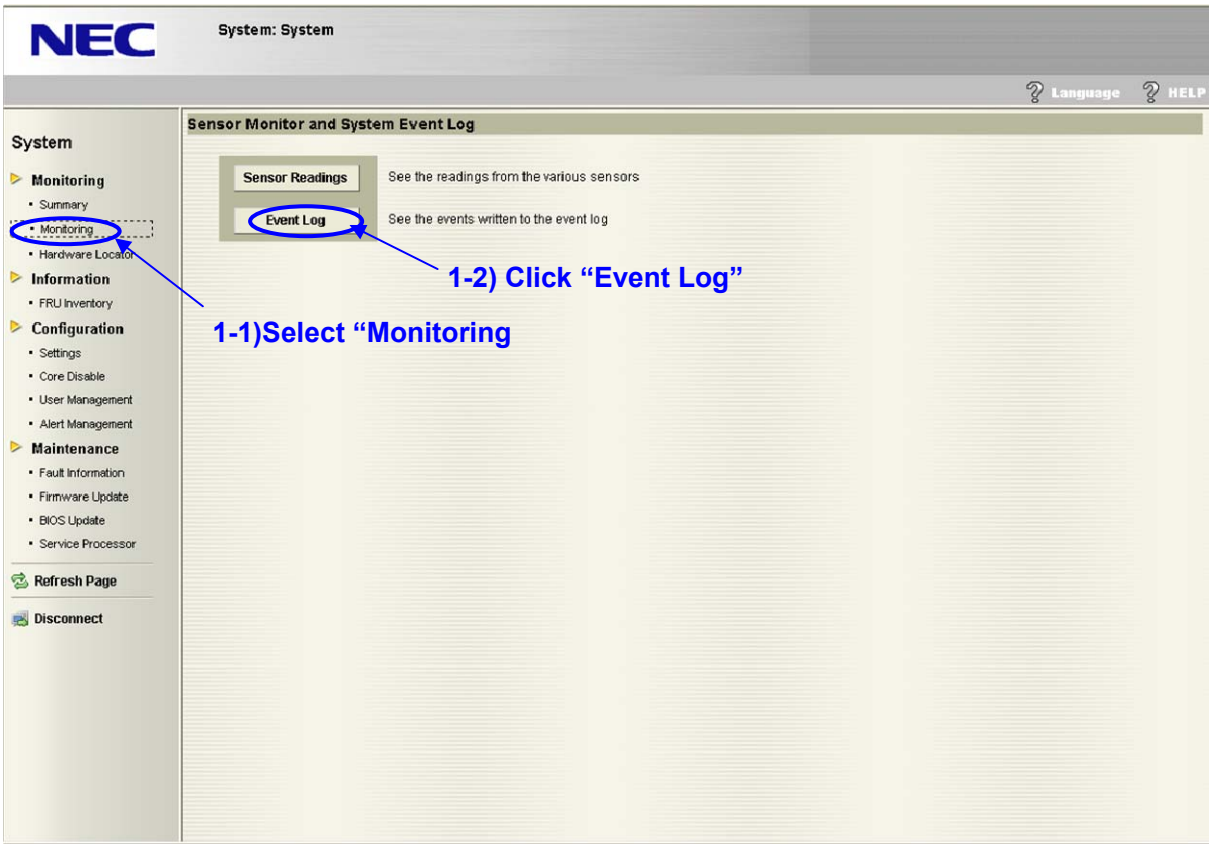
✓ Health : Operating status of the BM

Display Value	**Description**
Normal	No failure occurred, or only correctable error occurred.
Non-Critical	Recoverable Error occurred. Maintenance of the Server is required.
Critical	Fatal Error has occurred; maintenance of the Server is required.

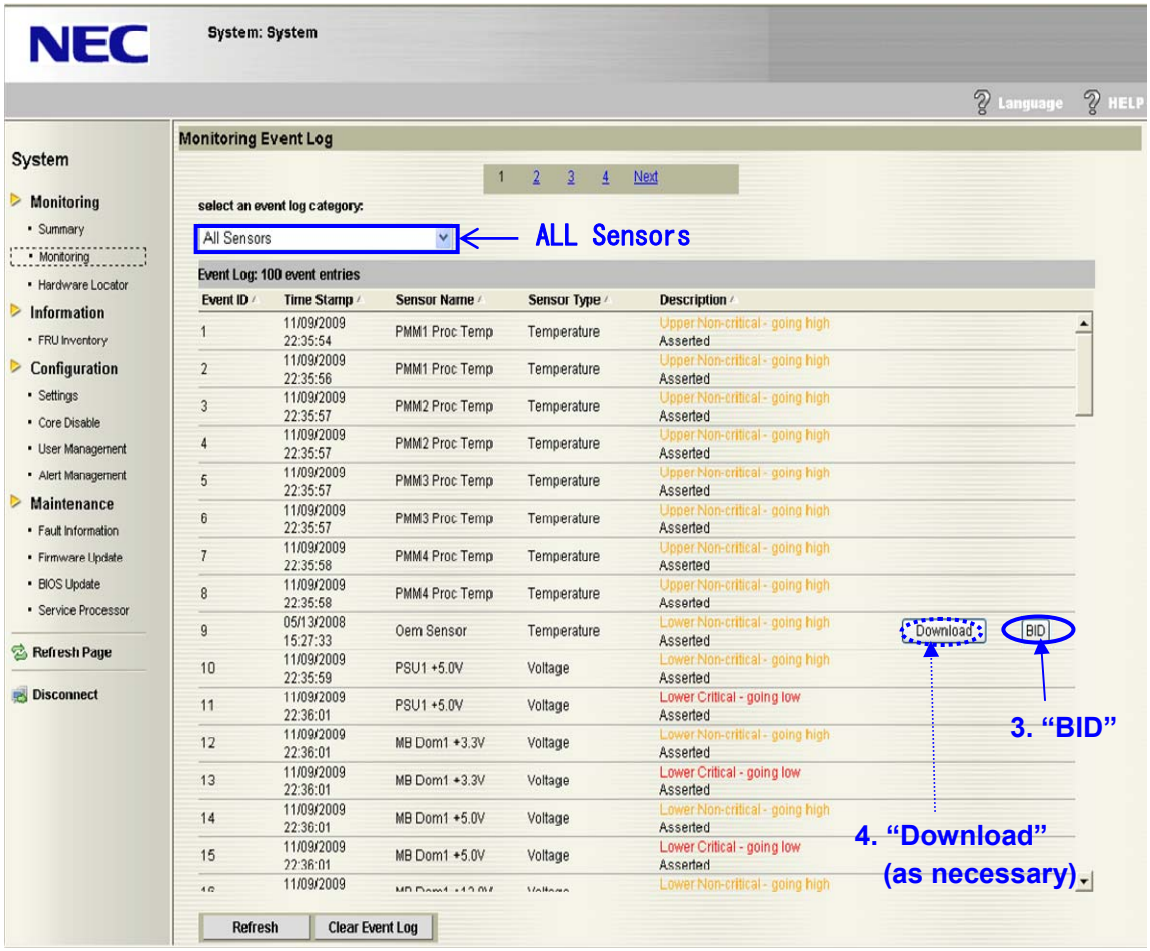
3. Confirm Event Log and then confirm the suspected failure with the BID.
   The suspected failure is confirmed through the WEB Console on the suspected system or server.
   As for models A1080a-S and A1080a-E, it is recommended to confirm both the System and Server 1 WEB Consoles. As for model A1080a-D, it is recommended to confirm the System, Server 1, and Server 2 WEB Consoles.

   (1) Start the WEB Console to be checked. Click **"Monitoring"** on the left menu and click **"Event Log"** on the **Sensor Monitor and System Event Log** screen.

   The following is an example of the System WEB Console:



(2) Confirm the Event Log on the **Monitoring Event Log** screen.
In **select an event log category**, select **All Sensors**.



<Description>
The Event Log consists of the following five elements:

- ✓ [Event ID] : Event ID
- ✓ [Time Stamp] : Date and time of the event
- ✓ [Sensor Name] : Sensor name
- ✓ [Sensor Type] : Sensor type (i.e., temperature, voltage)
- ✓ [Description] : Event details

"Download" and/or **"BID"** is displayed for the Event ID that has BID data or when more detailed log data exists.

(3) Click the **"BID"** listed in the line of the Event Log to display the BID data in a dialog box. Determine the result of the suspected failure analysis. Refer to **"3.1.1 Confirming the BID"** on how to read the BID data.

(4) When the **"Download"** is displayed in the Event Log, click **"Download"** and save logs as necessary.

(5) Read the information on the **Monitoring Event Log** screen as necessary since information listed here needs to be collected in the next procedure.
To collect event log data, right-click on the **Event Log** screen and select **"Select All (A)"**. Then, right-click and select **"Copy (C)"**. Paste the data on the text editor. Up to 100 event logs can be displayed at one time. Select a full-screen mode when there are 100 or more event logs.

(6) Repeat steps from 1 to 5 above for all WEB Consoles that need to be confirmed.

4. BID（Build In Diagnostic）Screen to show the failure on the suspected part

＜Description＞

Whether to replace a part is determined here.

```
BID : ********** Analysis Result **********************************************
1   BID : ---------- Fault Analysis Result ----------------------------------------
      No. 1          DIMM                  [PMM0/DIMM000                    ] 90%
      No. 2          PMM                   [PMM0                            ] 10%
2   BID : ---------- Fault Analysis Result (Component) --------------------------
      No. 1 ----- DIMM                     [PMM0/DIMM000                    ] 90%
      No. 2 ----- PMM                      [PMM0                            ] 10%
3   BID : ---------- Error Information ----------------------------------------
    PROC100 Memory single-bit ECC error occurred.
              CELL1/PMM0/DIMM000     ADDRESS=0x0012_77FE_AF80     ECC_INFO=0x8890
              Main memory DIMM patrol read data error occurred.
              DIMM error information.    SDRAM=No.D14, Signal(s)=DQ47
4   BID : ---------- Register Dump ----------------------------------------------
    PROC100 EVENT=0004 SSB=04 AT0=000000_00000000 AT1=000004_00000000 TRN=0
    BID : ********************************************************************************
```

Replacement FRU/CRU：

The suspected failure percentage of the part is displayed based on the number of units to be replaced when a failure occurs. The higher the suspected failure percentage for a part is, the higher the possibility that the part is the cause of failure. However, the sum of the percentage may not be 100, since after the decimal point is rounded off. The name of the part identified in No.1 of the BID is displayed in **View Faults** of the LCD.

```
BID : ---------- Fault Analysis Result ----------------------------
 No. 1        DIMM              [PMM0/DIMM000                ] 90%
 No. 2        PMM               [PMM0                        ] 10%
```

Part name　Location　Suspected failure percentage

CRU：Customer Replaceable Unit
FRU：Field Replaceable Unit

If the FRU is highly suspected and the CRU is not, contact the maintenance company to replace the FRU.

Specifying Failure of Power Cable

Since a failure of power cable is not detected by BID (Build In Diagnostic), judge if the cable must be replaced or not for a failure.

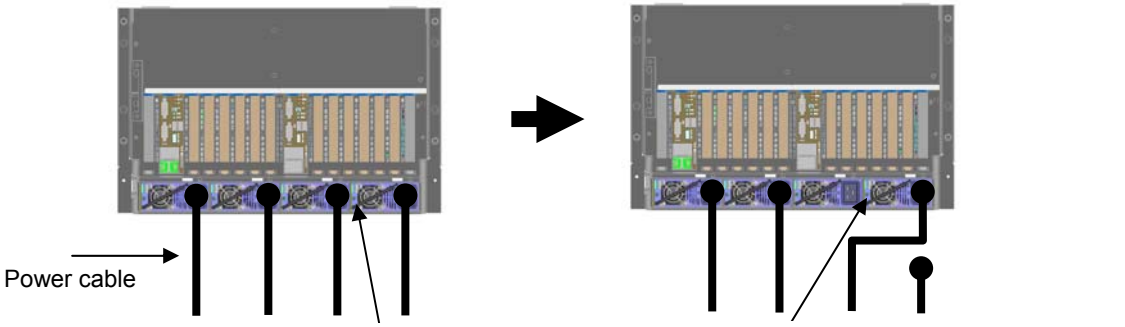
When the AC power is properly supplied to the power supply unit, the status LED of the unit blinks in green. When the DC power is properly supplied, the status LED of the unit lights in green.
If the status LED of the unit remains unlit after checking the following points, replace the power cable as the cable may be failed.

1. Is the power supply unit properly connected to the server and the releasing lever locked?
2. Is the power cable properly connected to the AC inlet of the power supply unit?
3. Is the switch of outlet box (PDU) on?
4. Is the power cable properly connected to the outlet box (PDU) or to the outlet?
5. Is the power properly supplied to the outlet box (PDU)?

Check the following points to find the potential cause of the problem if possible.
For the combination of the power supply unit functioning properly and the power cable:

a. Connect the properly functioning power cable to the power supply unit that the suspected cable is connected.
b. Connect the suspected power cable to the power supply unit that is properly functioning.

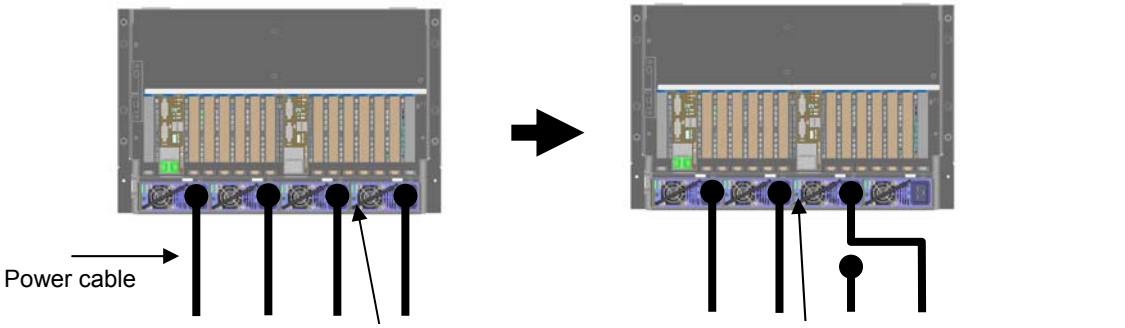
Example) In the case of “a.”



Status LED of power unit 4 does not light.

If status LED of power unit 4 blinks and lights, the unit is functioning properly and the power cable is suspected as a failure.

Example) In the case of “b.”



Status LED of power unit 4 does not light.

If status LED of power unit 3 does not blink or light, the power cable is suspected as a failure.

Collecting Failure Information

In the event of failure, collecting the information at the failure with the following procedure may be required.

IMPORTANT:
- **Collect the information described below only when such is requested by your maintenance company.**
  As to the hardware logs, however, it is recommended to collect before asking for a support in order for your maintenance company to identify and remove failed point quicker.
  For customers without support contract, collect the hardware log before asking for a support.
- **When the system restarts after the failure, it may show a message indicating that there is a shortage of virtual memory. Simply continue the system startup. If the system is reset and then restarted once again, the collection of failure information will fail.**

Collecting Event Logs

This section describes how to collect logs of various events occurred on the server.

IMPORTANT:
When STOP error, system error or system stall occurs, restart the server before the log collection.

1. Go to **"Control Panel → Administrative Tools → Event Viewer."**

2. Select log types to be collected.

   In **Application Log**, events related to the started application are recorded. In **Security Log**, events related to the security are recorded. In **System Log,** events related to the system configuration factors are recorded.

3. Click **"Save Log File As..."** command in **Operation Menu.**

4. Enter a name of archive log file in **"File Name"** box.

5. Select a type of log file to be saved in **"File Type"** list box, and click **"OK."**

Refer to the Windows online help for more details.

Collecting Configuration Information

This section describes how to collect information on hardware configuration and internal setting of the server.
Use Diagnostic Program for log collection.

IMPORTANT:
When STOP error, system error or system stall occurs, reboot the server before starting the log collection.

1. Select **"Setting"** from the start menu and click **"Control Panel".**

   "Control Panel" dialog box is displayed.

2. Double click **"Administrative Tools,"** and double click **"Computer Management"** icon.

   "Computer Management" dialog box is displayed.

3. Go to "**System Tools"** and click **"System Information".**

4. Click **"Save As System Information File…"** command in **Operation Menu.**

5. Enter a name of file to be saved in **"FileName"** box.

6. Click **"Save."**

Collecting User-Mode Process Dump (Dr. Watson Diagnostics Information)

This section describes how to collect diagnostics information related to application error.
Refer to **"Acquiring User-Mode Process Dump"** of **"Introduction"** for more details.

Collecting Memory Dump

This section describes how to collect dumped contents of memory at a failure.
There are two ways of collecting memory dump. Choose one of the below.

- Operate the navigation button of EXPRESSSCOPE® Monitor. From the operation menu, go to **"Serverx → SVRx Control → SVRx For Maint→ SVRx Force Dump."**

- Connect to the Web console, and then press **"Force Dump"** button from **Summary** (sub menu).

To collect memory dump, each OS require its settings. Refer to **"Introduction"** for more details.

IMPORTANT:

- **Collect memory dump after consulting the person who is managing the system or (if necessary)the maintenance service company. If logs are collected when the system is properly operating, the system may become unstable.**
- **When the system restarts after the failure, it may show a message indicating that there is a shortage of virtual memory. Simply continue the system startup. If the system is reset and then restarted once again, the collection of dump will fail.**
- **Request the analysis of collected memory dump to a company**

Backing up IPMI Information

IPMI information is collected. To collect the information, NEC ESMPRO Agent must be installed.

1. Go to **"Program → NEC ESMPRO Agent → ESRAS Utility." ESRAS Utility** screen is displayed.

2. Select **"Display the latest information"** from the tree to collect local computer information. If data appears, the information is collected.

3. From **File Menu**, click **"Backup the current IPMI information."**

4. Check the computer name to be backed up.

5. Specify the back up file name to be saved and the location, and click **"Backup."**

Collecting Hardware Log

This section describes which hardware information of the server needs to be collected.

IMPORTANT:
- **It is recommended to collect failure information described below before asking for a support in order for your maintenance company to identify and remove failed point quicker.**
  For customers without support contract, collect the hardware log before asking for a support.

- **Recording phenomenon**
- **Recording occurrence status**
- **Checking operation status of the server and the server itself**
- **Checking event logs and suspected issues**
- **Checking removed parts**
- **Collecting Sensor information**
- **Collecting Service Processor LOG information**

1. Recording phenomenon

Record the phenomenon at a failure in detail such as system stall or reboot.
Record also the lighting conditions of EXPRESSSCOPE® Monitor status LED and other LEDs.

2. Recording occurrence status

Record the status at a failure in detail.
Did the failure occur during the operation, at starting up or shutting down, when some operation is executed or the operation was in process?

3. Checking operation status of the server and the server itself

Following information checked on the analyzing procedure of failure.
· Status LED status of EXPRESSSCOPE® Monitor.
· **"View Faults"** information of EXPRESSSCOPE® Monitor
· **"System Summary"** information

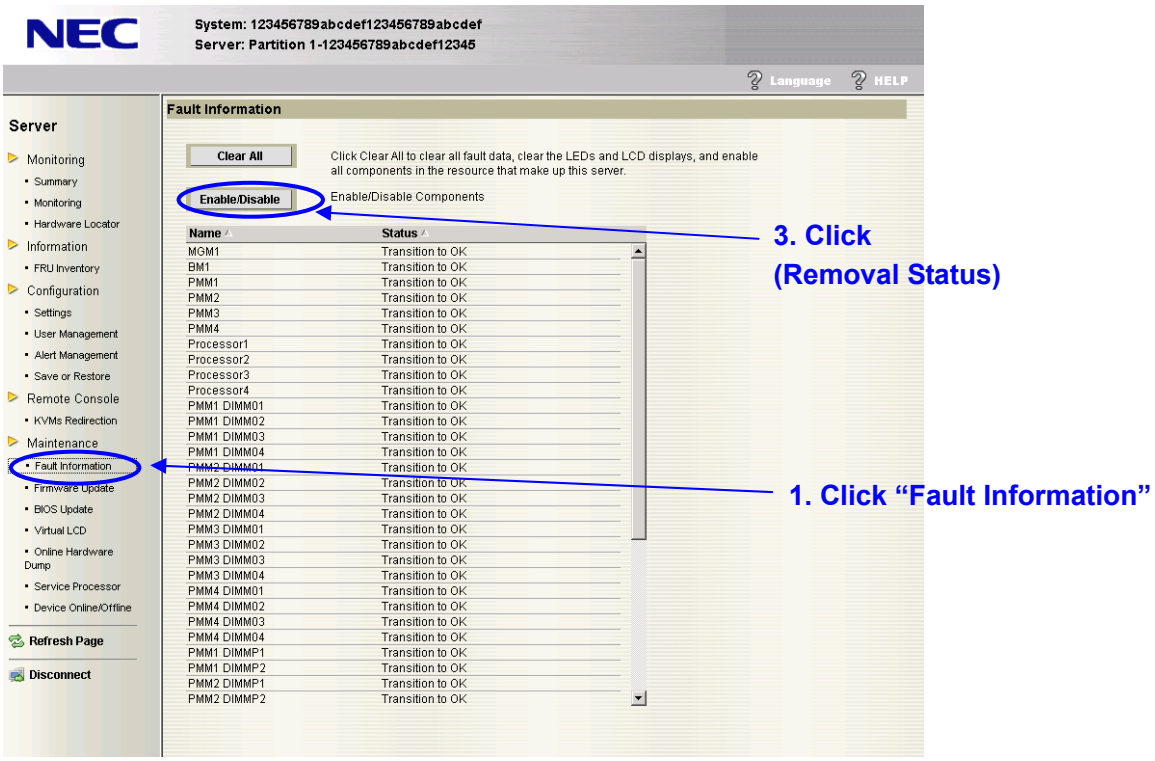
4. Checking event logs and suspected issues

Following information checked on the analyzing procedure of failure.
· BID information of event log

5. Checking Disabled Parts

1) Start the WEB Console to be checked. Click **"Fault Information"** on the left menu and check the status of each part on the **Fault Information** screen. When a scroll bar is displayed, drag the scroll box to confirm the status of all parts.

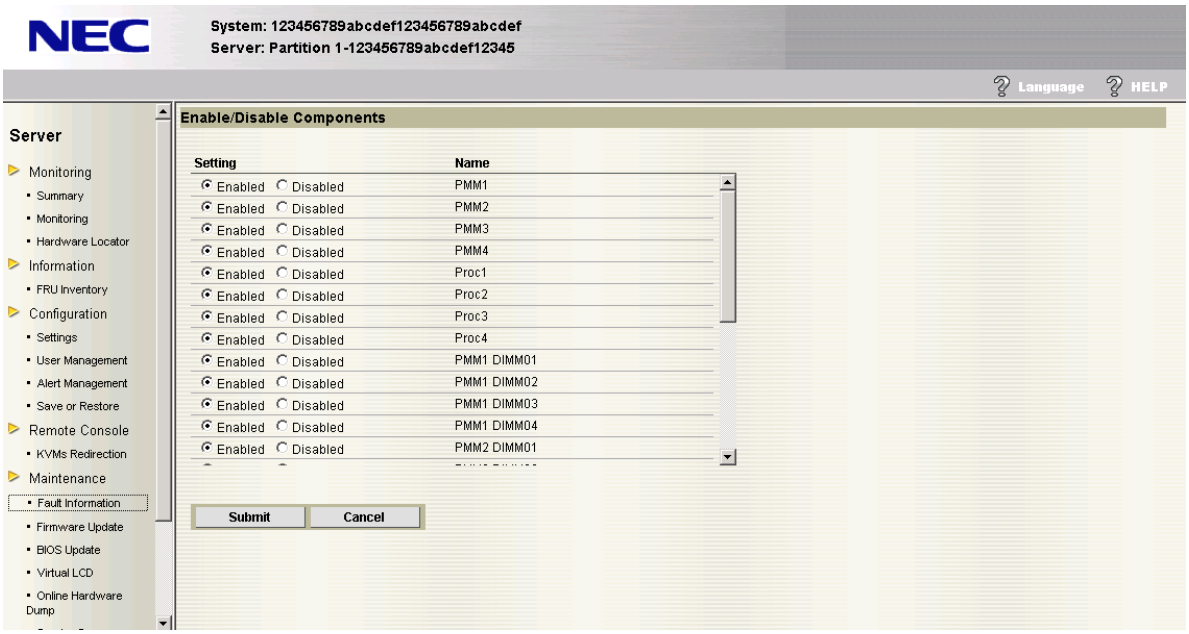
The following is an example of the Server WEB Console:



<Description>
✔Name : Target Part Names
✔Status : **Transition to OK** indicates that there is no problem. **Transition to Non-Critical from OK** and **Transition to Critical** indicate that a failure was found in the part.

2) Read the information and collect data from the **Fault Information** screen as necessary. Since textual data on the disabled parts cannot be copied, take a screen shot ([Alt+Print Screen]) or write the information down. (For Collecting Logs described in the next procedure.)

3) On the **Fault Information** screen, click **"Enabled"/"Disabled"** to go to the **Enable/Disable Components** screen and confirm the **Enabled** or **Disabled** status of the parts. Confirm if there is any part that is not intended to be removed (Disabled). When a scroll bar is displayed, drag the scroll box to confirm the status of all the parts, but avoid selecting **Enabled** and **Disabled** at this time.



<Description>

✔Setting : **Enabled** is selected when the part listed under **Name** is used. Otherwise, **Disabled** is selected.

✔Name : Disabled sensor name

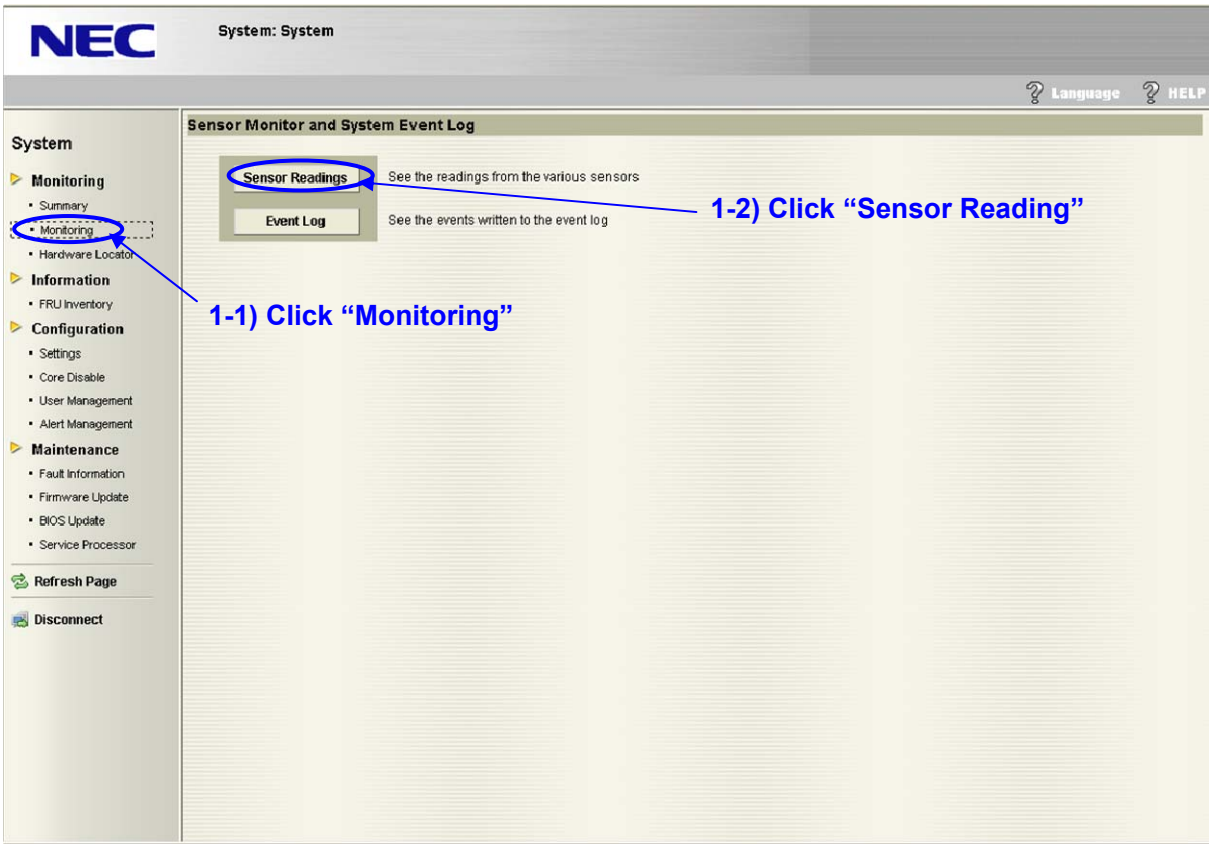
4) Read the information and collect data as necessary since information listed here needs to be collected in the next procedure. Since textual data on the removed parts cannot be copied, take a screen shot ([Alt+Print Screen]) or write the information down.

5) Repeat steps from 1) to 4) above for all WEB Consoles that need to be confirmed.

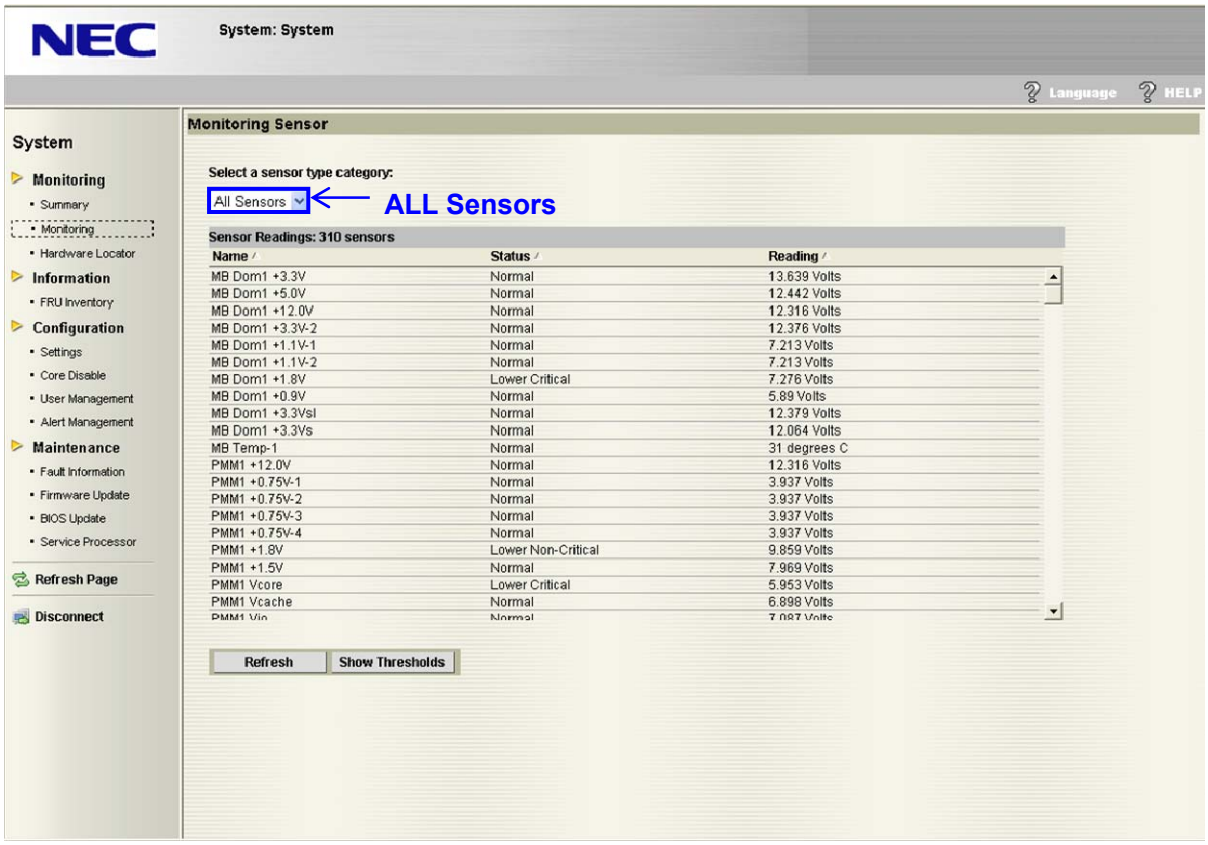
6. Confirming Sensor Information

1) Start the WEB Console to be checked. Click **"Monitoring"** on the left menu and click **"Sensor Reading"** on the **Sensor Monitor and System Event Log** screen.

The following is an example of the System WEB Console:



2) Confirm if there are any issues concerning the status of each part on the **Monitoring Sensor**. In **Select a sensor type category**, select **All Sensors**. When a scroll bar is displayed, drag the scroll box to confirm the status of all parts.



<Description>

✔Name : Sensor name.

✔Status : **Normal** indicates a normal status. **Non-Critical** and **Critical** indicate that a failure was found.

✔Reading : Sensor value.

3) Read the information on the **Monitor Sensor** screen as necessary since information listed here needs to be collected in the next procedure. Right-click on the **Sensor Readings** screen and select **"Select All (A)"**. Then, right-click and select **"Copy (C)"**. Paste the data in the Text Editor.

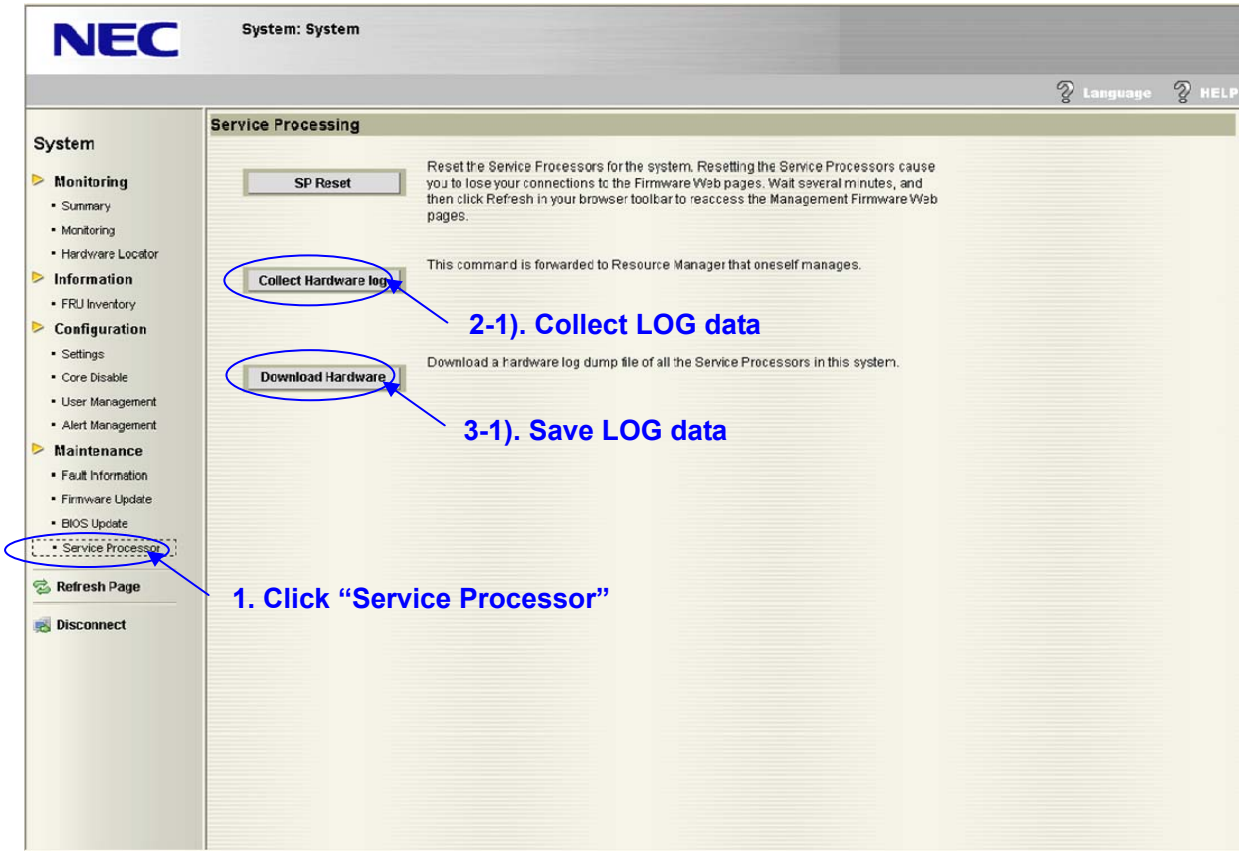
4) Repeat steps from 1) to 3) above for all WEB Consoles that need to be confirmed.

7. Collecting Service Processor LOG Information

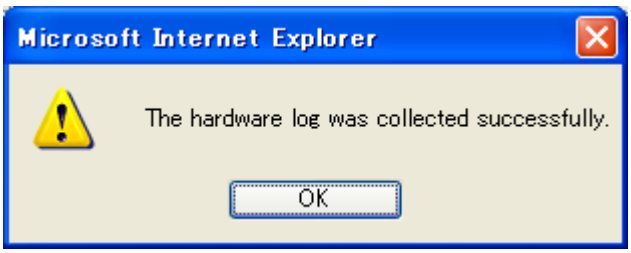
Collect the LOG information of the Service Processor.

IMPORTANT:
The LOG information of the Service Processor can be collected while the OS is operating. However, the response time from the OS may become slow since the management board can get heavily loaded. Therefore, it is recommended that the OS be shut down when collecting logs.

1) Click **"Service Processor"** on the left menu of the Server WEB Console of the Server containing the logs to be collected, or from the System WEB Console for the whole system.



2) Collect the log data.
   1) Click **"Collect Hardware Log"** on the **Service Processor** screen.
   2) **UPDATING...** is displayed on the upper right corner after the collection of LOG data is started. Do not move to another screen until the following dialog box is displayed.
   3) Collecting the log data is complete when the following dialog box is displayed.



3) Save the log data.

1) Click **"Download Hardware"** on the **Service Processors** screen.
2) The following dialog box is displayed. Save the log data in any folder of the management terminal.

Repairing System

Windows Server 2008

If the system cannot be started for some reason, use Recovery Console to restore the system. Note that this method is recommended to conduct under the supervision with users or administrators with a deep knowledge of the system. Refer to the online help for more details.

Windows Server 2008 R2

If the system cannot be started for some reason, use Recovery Console to restore the system. Note that this method is recommended to conduct under the supervision with users or administrators with a deep knowledge of the system. Refer to the online help for more details.

System Diagnostics

This section describes System Diagnostics that executes various tests for the server, and how to use its functions.

Contents of System Diagnostics

Following items are tested in system diagnostics.

- Checking memory installed on the server
- Checking cache memory of the processor
- Checking hard disk drives used as a system drive

IMPORTANT:
Ensure to disconnect LAN cable from the server first before the system diagnostics is executed. The network may become affected if the LAN cable remains connected to the server while System Diagnostics is in operation.

NOTE:
Hard disk drive check writes nothing on the disk.

Starting and Exiting System Diagnostics

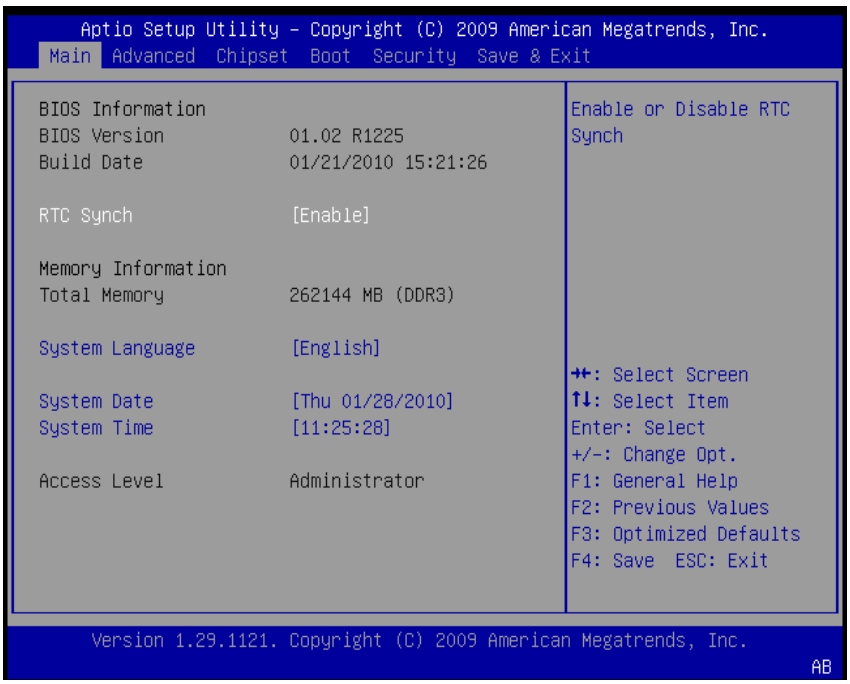
There are two procedures for the system diagnostics: The first is using a console (keyboard) directly connected to the server. The second is using a console on a management PC connected through the management LAN port (console-less).
The following is the starting up procedure.

1. Shutdown the OS and power off the server. Unplug the power cord.
2. Remove all the LAN cables from the server.
3. Plug in the power cord and power on the server.

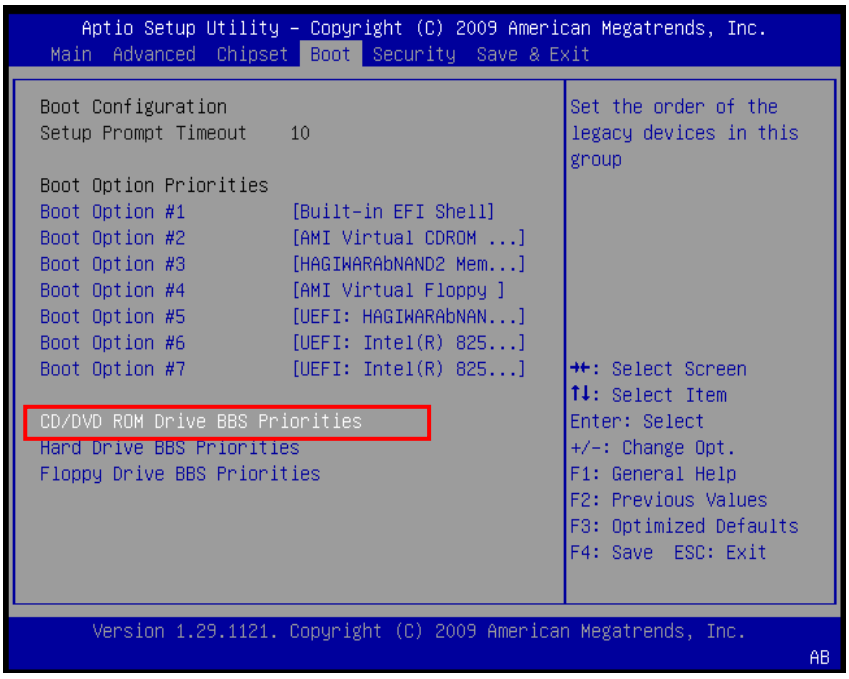
4. Start up the server. When the following message is displayed, press **"F2"** key to go to **BIOS setting** screen.

```
Version 1.26.1117. Copyright (C) 2008 American Megatrends, Inc.
Press <DEL> or <F2> to enter setup.
```

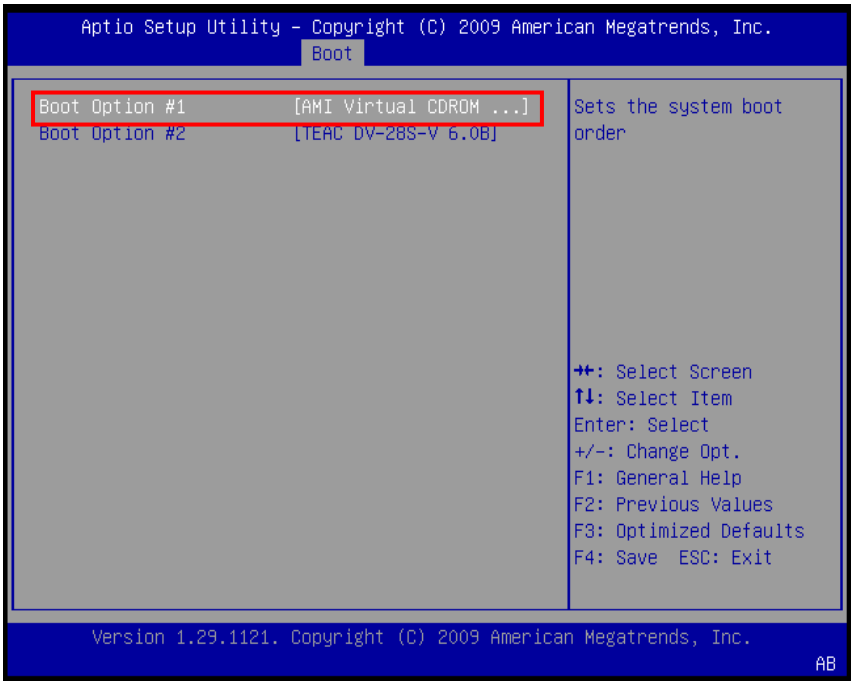
5. On the **BIOS setting** screen, go to **"Aptio Setup Utility."**



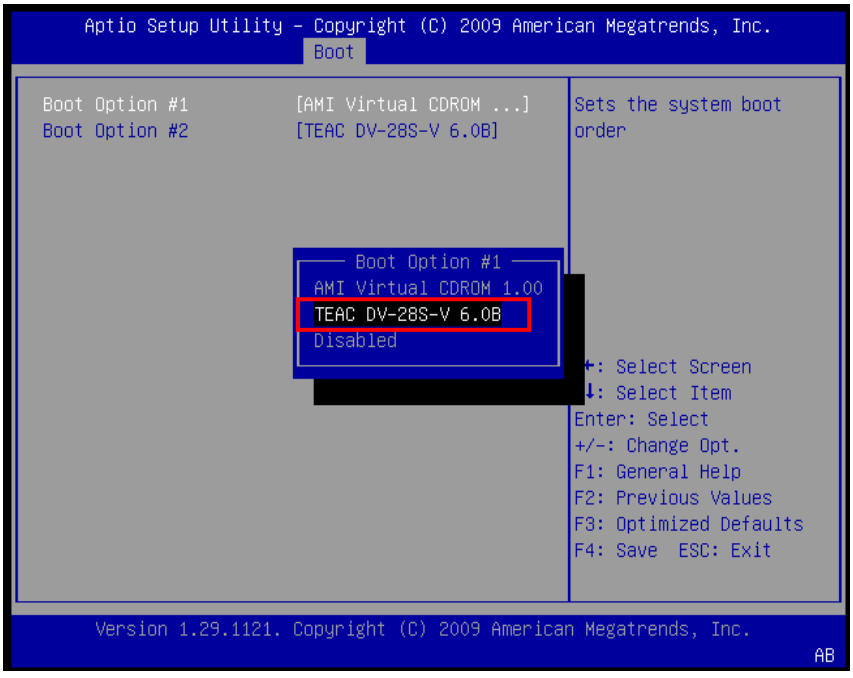
6. Select **Boot** screen with **"→,"** and select **"CD/DVD ROM Drive BBS Priorities"** with "↓" and then press **"Return."**



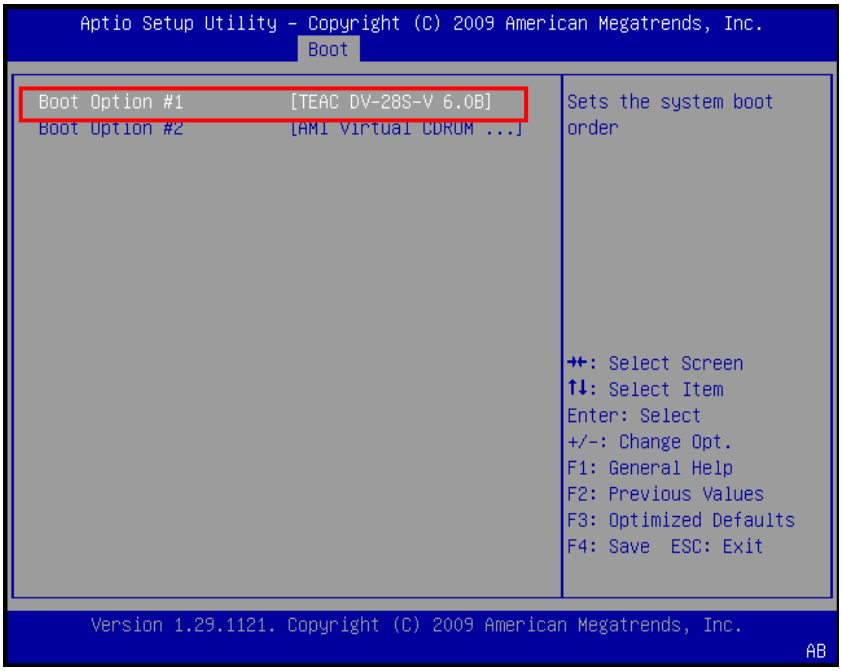
7. Select **"Boot Option #1"** and press **"Return."**



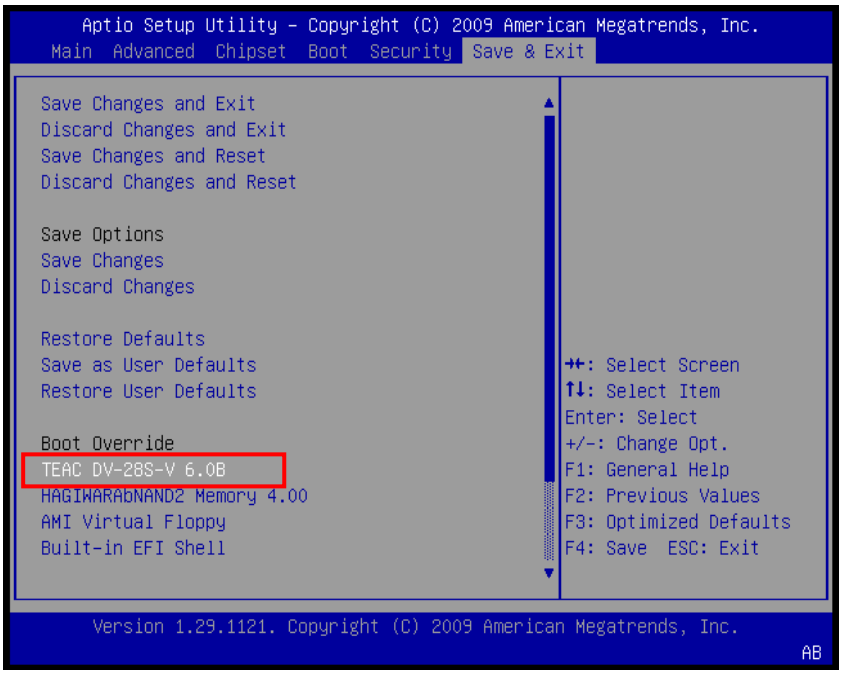
8. Select a DVD drive (the drive name differs depending on the installed DVD drive) and press **"Return."**



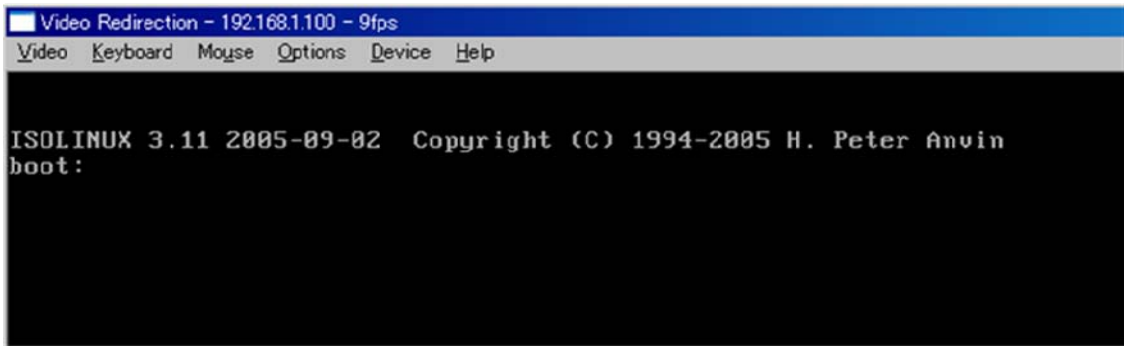
9. Confirm the drive is changed to the one selected as the **Boot Option #1** and press **"ESC."**



10. Insert the TeDoLi CD into the DVD drive, select **"SAVE & EXIT"** with **"→,"** select the DVD drive with **"↓,"** and then press **"RETURN."**



11. On the next screen, specify the console to execute the TeDoLi.
    Enter the following output target in <boot: _.
    If there is no target input within 3 seconds after the screen below is displayed, the output target will be SOL.



(1) Using SOL (Serial Over LAN)
Press **"Return"** as it is.

(2) Using VGA/remote KVM
Enter **"linux_vga"** and press **"Return."**

(3) Using serial console
Enter **"linux"** and press **"Return."**

If no target is specified, it is output to the SOL.

Nothing is output for a console that is unspecified.

12. Execute test.

(1) Enter **<list>** command on the command line of the TeDoLi screen to display the test device list.

```
TeDoLi> list
+---+-+-------------------------------+----------+----+----------+
| Num|*| Device List                   | Type     |Prev| Status   |
+---+-+-------------------------------+----------+----+----------+
|   1| | MEMORY                        |MEMORY    |    |          |
|   2| | DVD DVD/CDRW RW9120           |DVD       |    |          |
|   3| | DVD Virtual CDROM             |DVD       |    |          |
|   4|!|-MGM2                          |MODULE    |    |          |
|   5|!| -MGM2/MGB/GbE                 |NIC       |    |          |
|   6| |   Port1(eth1)                 |ETH-PORT  |    |          |
|   7| |   Port2(eth2)                 |ETH-PORT  |    |          |
|   8|!|-PMM5                          |MODULE    |    |          |
|   9| |  PMM5/PMB/PROC                |CPU       |    |          |
|  10|!|-PMM6                          |MODULE    |    |          |
|  11| |  PMM6/PMB/PROC                |CPU       |    |          |
|  12|!|-BM                            |MODULE    |    |          |
|  13|!| -BM/MB/PCI1                   |SCSI(NoDev)|    |          |
|  14|!|   Port1                       |SCSI-PORT |    |          |
|  15|!| -BM/MB/PCI8                   |NIC       |    |          |
|  16| |   Port1(eth0)                 |ETH-PORT  |    |          |
|  17|!| -BM/MB/PCI9                   |FC        |    |          |
|  18|!|  -Port1                       |FC-PORT   |    |          |
|  19| |    SCSI-IDO LUNO(iStorage 1000)|HDD       |    |          |
|  20|!|   Port2                       |FC-PORT   |    |          |
|  21| | ROOT/Port1 Virtual Floppy     |HDD       |    |          |
+---+-+-------------------------------+----------+----+----------+
```

The test device list is displayed in the tree structure corresponding to the installed position of hardware.

- In the **"Num"** row, the test device number of the test device is displayed. Specify the test device using these test device number.
- In the **"*"** row, selected test is displayed in **"*."** If not selected, the test is displayed in **" "** (blank). If **"!"** appears on a device, it is unselectable as the test device.
- In the **"Device List"** row, the device name of the test device is displayed.
- No device is selected for the test device on the initial status just after starting the TeDoLi.
- The device information on the lower layer can be collapsed with **<close>** command for the tree that **"-"** is added on the top of the device name.
- The device information on the lower layer can be expanded with **<open>** command for the tree that **"+"** is added on the top of the device name.
- The test device type is displayed in the **"Type"** row. On this type, the test device can be selected by using **<select/desel>** command.
- In the **"Prev"** row, the most recently executed test result is displayed.
- In the **"Status"** row, the current test status is displayed.

(2) Enter **<select>** command on the command line of the **System Diagnostics** screen to select the test required device.

- The followings are three ways of specifying the test device.
  1. Specifying **"Test device number"**: Specifies the test device number of **"Num"** row individually.
     When specifying a device that **"+"** or **"-"** is added on the top of the device name, all the devices under the tree is selected.
  2. Specifying **"Test device type"**: Specifies the test device type of **"Type"** row. This specifies the same type of devices.
  3. Specifying **"all"**: Specifies all the test devices. **# Specify <all> in general.**
     If there is no media in the virtual CDROM and the virtual Floppy, the test for them will fail. So, ignore the test result for them or do not execute the test for them.

The below is an example of specifying **<Test device number>**.
Check the executed result of **<select>** command with the **<list>** command.

```
TeDoLi> select 19
TeDoLi> list
+---+-+--------------------------------+----------+----+------------+
| Num|*| Device List                    | Type     |Prev| Status     |
+---+-+--------------------------------+----------+----+------------+
|   1| | MEMORY                         |MEMORY    |    |            |
|   2| | DVD DVD/CDRW RW9120            |DVD       |    |            |
|   3| | DVD Virtual CDROM              |DVD       |    |            |
|   4|!|-MGM2                           |MODULE    |    |            |
|   5|!| -MGM2/MGB/GbE                  |NIC       |    |            |
|   6| |   Port1(eth1)                  |ETH-PORT  |    |            |
|   7| |   Port2(eth2)                  |ETH-PORT  |    |            |
|   8|!|-PMM5                           |MODULE    |    |            |
|   9| |  PMM5/PMB/PROC                 |CPU       |    |            |
|  10|!|-PMM6                           |MODULE    |    |            |
|  11| |  PMM6/PMB/PROC                 |CPU       |    |            |
|  12|!|-BM                             |MODULE    |    |            |
|  13|!| -BM/MB/PCI1                    |SCSI(NoDev)|    |            |
|  14|!|   Port1                        |SCSI-PORT |    |            |
|  15|!| -BM/MB/PCI8                    |NIC       |    |            |
|  16| |   Port1(eth0)                  |ETH-PORT  |    |            |
|  17|!| -BM/MB/PCI9                    |FC        |    |            |
|  18|!|  -Port1                        |FC-PORT   |    |            |
|  19|*|    SCSI-IDO LUNO(iStorage 1000)|HDD       |    |            |
|  20|!|   Port2                        |FC-PORT   |    |            |
|  21| | ROOT/Port1 Virtual Floppy      |HDD       |    |            |
+---+-+--------------------------------+----------+----+------------+
```

(3) Enter **<time>** or **<round>** command on the command line of the **System Diagnostics** screen to set the test ending condition. When the test ends by the specified time, specify **<time>** command. When the test ends by the number of test executing times, specify **<round>** command.

In general, specify <time 15>.

The following is an example of specified command.

```
TeDoLi> option
Execution Control:
Loop continuously.

TeDoLi> time 15
TeDoLi> option
Execution Control:
Execution Time Limit: 15 minutes.

TeDoLi> round 100
TeDoLi> option
Execution Control:
Round times: 100 rounds.
```

- When **"0"** is specified as the test ending condition, the test infinitely runs, regardless of test time or number of rounds. The initial status just after starting the system diagnostics is loop execution for the specified test time.
- The test time can be specified by the minute. Test is repeatedly executed within the specified time (minutes). After the specified time elapses, the test completes without repeating.
- Test runs for the specified number of rounds and ends without repeating.
- With **"0"** specified, the test infinitely runs until it is forcibly terminated with **<term>** command or until an error is detected.

(4) Enter **<exec>** command on the command line of the **System Diagnostics** screen.

The following is an example of specified command.

```
TeDoLi> exec
Executing the test.
Execution Control:
Loop continuously.
```

- **<exec>** command is accepted only when the test status is **"Idle."**
- When entering **<exec>** command, the test ending condition can be confirmed.

13. Check test status.

Enter **<stat>** on the command line of the **System Diagnostics** screen to check the executing status of the test.

The following is an example of screen using the command.

```
TeDoLi> stat
Status         : Executing
Time           : 000:00:44
Total of tests : 15
Running        : 15
Pass           : 0
Failure        : 0
Warning        : 0

TeDoLi> statv 16
----------------------
BM/MB/PCI8/Port1(eth0)
----------------------
Test Count     : 74
Progress       : 49%
```

- Status: one of the following three statuses is displayed. This status is the status of TeDoLi itself.
  - Idle status : Status before starting the test. Or the status after the completion of test.
  - Executing status : Status that the test is being executed.
  - Waiting for Termination status : Status that waiting for the completion of the test.
- Time: elapsed time of the test being executed (elapsed time from entering **<exec>** command) is displayed. The time is updated until all the tests are completed.
- Total of tests shows the total number of tests. Test types are sorted as follows depending on the executed test results.
  - Pass: : Number of tests ended normally
  - Failure : Number of tests ended with error
  - Warning : Number of tests ended with warning (# This is an information expanded in the future and is not supported as of yet).
- Use **<statv>** command to check the detailed status (number of executed times and progress of each time) for each test.
- Test status can also be checked by using **<list>** on the test device list.
- Use **<term>** command to terminate the current test forcibly.

,Refer to Command List for more details on each command.

14. Check results of executed test.

    Enter **<fail>** command in the command line of the **System Diagnostics** screen to check the executed results of the test.
    Nothing is displayed when there is no error.
    When an error occurs, detailed information is displayed of all the test result with error.

    The following is an example of screen when an error occurs.

```
TeDoLi> fail
--------------------
BM/MB/PCI8/Port1(eth0)
--------------------
Device number     : 16
Terminated the test due to an unexpected error.
Set loopback mode error.
Ether operation error occurred.
API status    : 00 (H)
Driver status : 5f (H)
Set loopback mode is not completed.
Controller registers :
 000c0241 00080380 04008002 00001000
 00000000 000000fe 00000000 310000f8
 00001000 00000000 00000000 00000008
 00000004 00000000 00000000 00000000
```

    When an error occurs, replace the target parts and execute the diagnostics test again.

15. Eject the media from the DVD drive.

16. End system diagnostics.

    Enter **<shutdown>** command or **<reboot>** command in the command line of the **System Diagnostics** screen to end the system diagnostics.

    The following is an example of using **<shutdown>** command.
    If the command is entered, the command confirmation message is displayed.
    Enter **"y"** to shutdown the server.

```
TeDoLi> shutdown
Are you sure you want to shut down the system?
Enter Y or N [N]: y
   :
   :
```

    · **<shutdown>** command and **<reboot>** command are available only when the system diagnostics status is **"Idle."**
    · When **<reboot>** is entered, the system is rebooted.

17. Power off the server and unplug the power cord from the outlet.

18. Connect the LAN cable disconnected on the step 2.

19. Plug the power cord to the power outlet.

20. End the maintenance mode.

Details of System Diagnostics

Test Items

Test item	Test name	Test target device
Memory test	Memory access test	Memory
CPU test	Cache test	CPU cache
	Floating point arithmetic test	CPU
DVD test	Random read test	Internal DVD drive
MT test	Read test	External storage
HDD test	Random read test	Internal HDD, external storage
Ether test	Internal loopback test	Onboard LAN, extended LAN

Note

■ Note on disk array

For disk array device, it is controlled as the test target device per each logical device.
System diagnostics sets the upper limit of the test target devices up to one logical disk per one port of the card
More than one logical disk per one port are not displayed on the test menu.

■ Note on tape library

For tape library, it is controlled as the test target device in each LUN.
System diagnostics sets the upper limit of the test target LUN up to 16 per one tape library.
More than 16 LUNs are not displayed on the test menu.
Before the test for assembled type MT device is executed, move the media from the magazine to the drive since it is not allowed moving the drive from the magazine.

■ Note on executing LAN card loopback tests of multiple ports simultaneously with the system diagnostics

When LAN card loopback tests are executed simultaneously for multiple ports, the count may not proceed from **"1"** and the test result may become **"fail."** This is most likely caused by a special test mode setting of packet loopback inside of the card, which is not used on OS operation.

When the round does not proceed from **"1"** and the test result is **"fail,"** end the test temporarily and execute the test again. The card is judged as failure only when **"fail"** occurred again on the same port.

Command List

The following is the list of the command used on the system diagnosis. Refer to **"Command Reference"** for the details of using each command (✓ = Available ○ = Unavailable).

Command	Description	Idle	Exec	Wait
close	Collapse the display under the specified device on the tree.	✓	✓	✓
desel	Unselect the test device from the test target.	✓	○	○
exec	Start test.	✓	○	○
fail	Display the test information of test ended with error.	✓	✓	✓
help	Display the command list.	✓	✓	✓
info	Display the detailed information of the test device.	✓	✓	✓
list	Display the test device list.	✓	✓	✓
log	Save the log of executed test.	✓	✓	✓
open	Expand the display under the specified device on the tree.	✓	✓	✓
option	Display the test ending condition.	✓	✓	✓
pass	Display the test information ended normally.	✓	✓	✓
reboot	Reboot the system.	✓	○	○
round	Set the number of times of test.	✓	○	○
select	Select the test device to be the test target.	✓	○	○
shutdown	Shutdown the system.	✓	○	○
stat	Display the test status of whole TeDoLi.	✓	✓	✓
statv	Display the detailed status of each test.	✓	✓	✓
term	End the currently-executed test forcibly.	○	✓	○
time	Set the test duration.	✓	○	○
ver	Display the version of the TeDoLi.	✓	✓	✓
warn	Display the test information of Warning status.	✓	✓	✓

Idle status : Status before starting the test. Or the status after the completion of test.
Executing status : Status that the test is being executed.
Waiting for Termination status : Status that waiting for the completion of the test.

Command Supporting Function

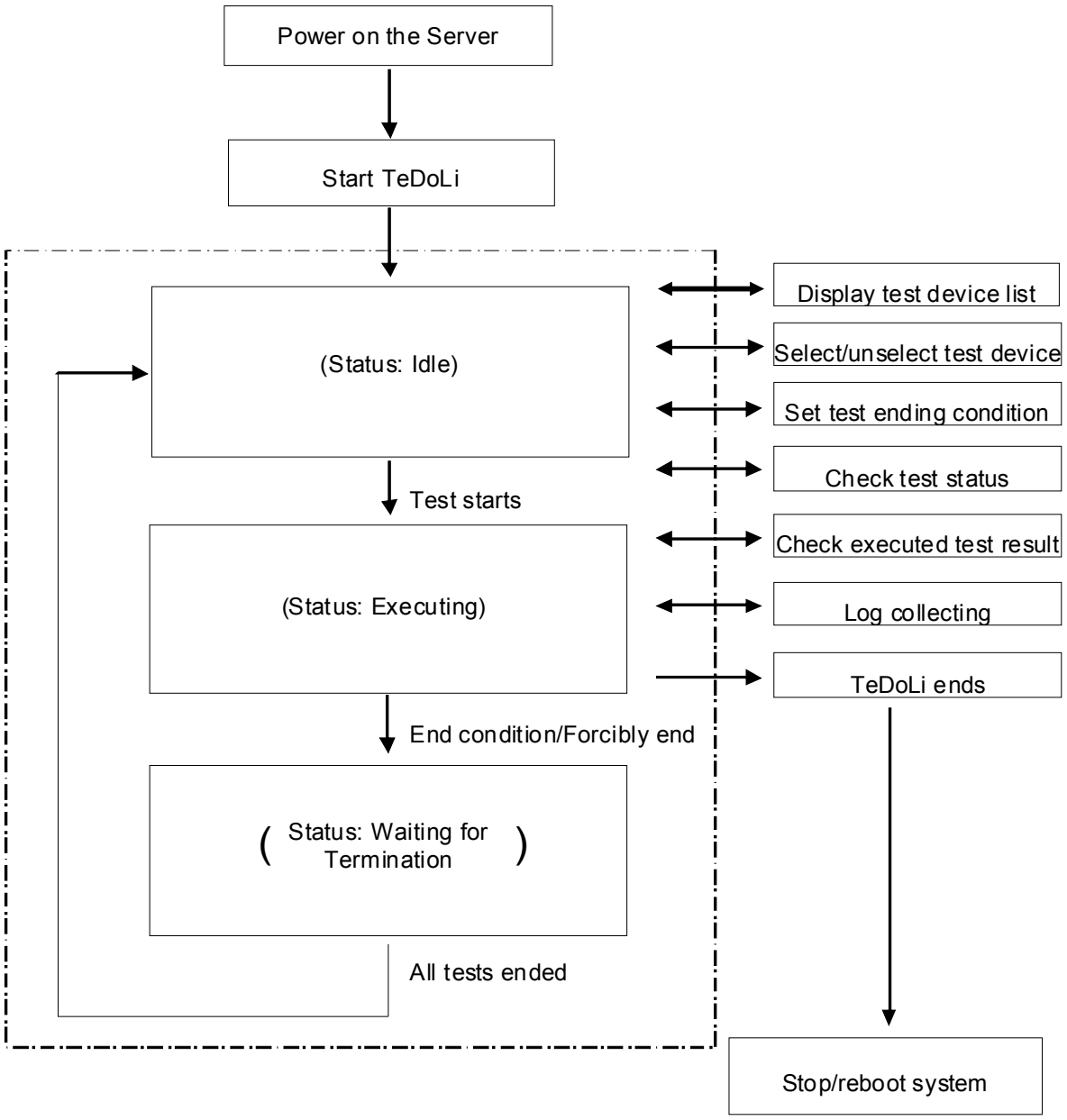
Tab complement and history function is prepared as part of the command supporting function of the system diagnostics.

■ Tab complements
Pressing the tab twice to enable this function. It lists all the available commands when no command is entered. When a single character is already entered, commands sorted with the entered character is displayed. If there is only one corresponding command, the sorted command is displayed on the command line.

■ History function
With **"UP"** or **"DOWN"** keys, this function refers the commands that are entered after the start up.

How to Execute System Diagnostics

Sequence of Test Execution



Displaying Test Device List

Use **<list>** command to display the list of test devices.
Test Device List is displayed in the tree structure. The tree shows the installed position of hardware. Except all the memory in the system is displayed in one lump.

The following is an example of screen using the command.

```
TeDoLi> list
+---+-+-------------------------------+-----------+----+-------------+
| Num|*| Device List                   | Type      |Prev| Status      |
+---+-+-------------------------------+-----------+----+-------------+
|   1| | MEMORY                        |MEMORY     |    |             |
|   2| | DVD DVD/CDRW RW9120           |DVD        |    |             |
|   3| | DVD Virtual CDROM             |DVD        |    |             |
|   4|!|-MGM2                          |MODULE     |    |             |
|   5|!| -MGM2/MGB/GbE                 |NIC        |    |             |
|   6| |   Port1(eth1)                 |ETH-PORT   |    |             |
|   7| |   Port2(eth2)                 |ETH-PORT   |    |             |
|   8|!|-PMM5                          |MODULE     |    |             |
|   9| |  PMM5/PMB/PROC                |CPU        |    |             |
|  10|!|-PMM6                          |MODULE     |    |             |
|  11| |  PMM6/PMB/PROC                |CPU        |    |             |
|  12|!|-BM                            |MODULE     |    |             |
|  13|!| -BM/MB/PCI1                   |SCSI(NoDev)|    |             |
|  14|!|   Port1                       |SCSI-PORT  |    |             |
|  15|!| -BM/MB/PCI8                   |NIC        |    |             |
|  16| |   Port1(eth0)                 |ETH-PORT   |    |             |
|  17|!| -BM/MB/PCI9                   |FC         |    |             |
|  18|!|  -Port1                       |FC-PORT    |    |             |
|  19| |    SCSI-IDO LUN0(iStorage 1000)|HDD       |    |             |
|  20|!|   Port2                       |FC-PORT    |    |             |
|  21| | ROOT/Port1 Virtual Floppy     |HDD        |    |             |
+---+-+-------------------------------+-----------+----+-------------+
```

- The test device list is displayed in the tree structure corresponding to the installed position of hardware.
- In the **"Num"** row, the test device number of the test device is displayed. Specify the test device using these test device number.
- In the **"*"** row, selected test is displayed in **"*."** If not selected, the test is displayed in **" "** (blank). If **"!"** is displayed on a device, it is unselectable as the test device.
- In the **"Device List"** row, the device name of the test device is displayed.
- No device is selected for the test device on the initial status just after starting the TeDoLi.
- The device information on the lower layer can be collapsed with **<close>** command for the tree that **"-"** is added on the top of the device name.
- The device information on the lower layer can be expanded with **<open>** command for the tree that **"+"** is added on the top of the device name.
- The test device type is displayed in the **"Type"** row. On this type, the test device can be selected by using **<select/desel>** command.
- In the **"Prev"** row, the most recently executed test result is displayed.
- In the **"Status"** row, the current test status is displayed.

Selecting/Unselecting Test Device

Use **<select>** command to select the test device, and **<desel>** command to unselect the test device.

The following is an example of screen using the command.

```
TeDoLi> select 19
TeDoLi> list
+---+-+-------------------------------+-----------+----+-------------+
| Num|*| Device List                   | Type      |Prev| Status      |
+---+-+-------------------------------+-----------+----+-------------+
|   1| | MEMORY                        |MEMORY     |    |             |
|   2| | DVD DVD/CDRW RW9120           |DVD        |    |             |
|   3| | DVD Virtual CDROM             |DVD        |    |             |
|   4|!|-MGM2                          |MODULE     |    |             |
|   5|!| -MGM2/MGB/GbE                 |NIC        |    |             |
|   6| |   Port1(eth1)                 |ETH-PORT   |    |             |
|   7| |   Port2(eth2)                 |ETH-PORT   |    |             |
|   8|!|-PMM5                          |MODULE     |    |             |
|   9| |  PMM5/PMB/PROC                |CPU        |    |             |
|  10|!|-PMM6                          |MODULE     |    |             |
|  11| |  PMM6/PMB/PROC                |CPU        |    |             |
|  12|!|-BM                            |MODULE     |    |             |
|  13|!| -BM/MB/PCI1                   |SCSI(NoDev)|    |             |
|  14|!|   Port1                       |SCSI-PORT  |    |             |
|  15|!| -BM/MB/PCI8                   |NIC        |    |             |
|  16| |   Port1(eth0)                 |ETH-PORT   |    |             |
|  17|!| -BM/MB/PCI9                   |FC         |    |             |
|  18|!|  -Port1                       |FC-PORT    |    |             |
|  19|*|    SCSI-ID0 LUN0(iStorage 1000)|HDD       |    |             |
|  20|!|   Port2                       |FC-PORT    |    |             |
|  21| | ROOT/Port1 Virtual Floppy     |HDD        |    |             |
+---+-+-------------------------------+-----------+----+-------------+
```

- The execution result of **<select>** is confirmed by **<list>** command.
- The followings are three ways of specifying the test device.

  Specifying **"Test device number"** : Specifies the test device number in **"Num"** row. This specifies devices individually. With **"+"** or **"-"** added on the top of the device name, all the devices under the tree is selected.

  Specifying **"Test device type"** : Specifies the test device type of **"Type"** row. This specifies the same type of devices.

  Specifying **"all"** : Specifies all the test devices.

Setting Test Ending Condition

Use **<option>** command to check the test ending condition.
There are two procedures for the test ending conditions. The first is ending the test by setting the test executing time. The second is ending the test by setting the round times, the number of test to carry out. Use **<time>** command to end the test by specifying the test executing time. Use **<round>** command to end the test by specifying the number of test.

The following is an example of screen using the command.

```
TeDoLi> option
Execution Control:
Loop continuously.

TeDoLi> time 15
TeDoLi> option
Execution Control:
Execution Time Limit: 15 minutes.

TeDoLi> round 100
TeDoLi> option
Execution Control:
Round times: 100 rounds.
```

- When **"0"** is specified on test executing time or on number of test executing times in the test ending condition, the test is executed endlessly. The initial status just after starting the TeDoLi is endless execution by specifying the test executing time.
- In the specifying test executing time, the time can be specified by the minute. Test is repeatedly executed within the specified time (minutes). After the specified time elapses, the test ends without repeating after the test being executed completes.
- In the specifying number of test executing times, the test ends after repeating the test specified times.
- In the specifying endless test execution, the test is repeatedly executed until the test is forcibly terminated by **<term>** command or until an error is detected.

Starting Test

Use **<exec>** command to execute the selected test.
The following is an example of screen using the command.

```
TeDoLi> exec
Executing the test.
Execution Control:
Loop continuously.
```

- The **<exec>** command is accepted only when the test status is **"Idle."**
  Use **<stat>** command to check the test status.
- The **<exec>** command enables to check the test ending condition.

Checking Test Status

Use **<stat>** command to check the progress of the test. To check the detailed status for each test, use **<statv>** command. This command shows the number of executed times and progressing status of each time for each test.
The following is an example of screen using the commands.

```
TeDoLi> stat
Status         : Executing
Time           : 000:00:44
Total of tests : 15
Running        : 15
Pass           : 0
Failure        : 0
Warning        : 0

TeDoLi> statv 16
----------------------
BM/MB/PCI8/Port1(eth0)
----------------------
Test Count     : 74
Progress       : 49%
```

- One of the following three statuses is displayed in **"Status."** This is the status of TeDoLi itself.
  - Idle status : Status before starting the test. Or the status after the completion of test.
  - Executing status : Status that the test is being executed.
  - Waiting for Termination status : Status that waiting for the completion of the test.
- Elapsed time of the test being executed (elapsed time from entering **<exec>** command) is displayed in **"Time."** The time is updated until all the tests are completed.
- **"Total of tests"** shows the total number of tests. Test types are sorted as follows depending on the executed test results.
  - Pass: : Number of tests ended normally
  - Failure : Number of tests ended with error
  - Warning : Number of tests ended with warning (# This is an information expanded in the future and is not supported as of yet).
- There are two procedures to specify the test with **<statv>** command.
  - Specifying "Test device number" : Specifies the test device number in **"Num"** row.
  - Specifying **<all>** : Specifies all the devices.
- **"Test Count"** shows the number of executed test. This item shows **"1"** immediately after starting the test.
- **"Progress"** shows the degrees of progress of the test in the test round. This is not the degree of progress for the entire rounds.

Test executed status can be confirmed on the test device list by **<list>** command.

The following is an example of screen using the command.

```
TeDoLi> list
+----+-+--------------------------------+----------+----+------------+
| Num|*| Device List                    | Type     |Prev| Status     |
+----+-+--------------------------------+----------+----+------------+
      :
|  17|!| -BM/MB/PCI9                    |FC        |    |            |
|  18|!|  -Port1                        |FC-PORT   |    |            |
|  19|*|    SCSI-ID0 LUN0(iStorage 1000)|HDD       |    |running     |
      :
+----+-+--------------------------------+----------+----+------------+
The test will terminate in 10 minutes.
```

- When the test is executed with **"Round times"** specified, the remaining execution time is displayed in the last line.

```
TeDoLi> list
+----+-+--------------------------------+----------+----+------------+
| Num|*| Device List                    | Type     |Prev| Status     |
+----+-+--------------------------------+----------+----+------------+
      :
|  17|!| -BM/MB/PCI9                    |FC        |    |            |
|  18|!|  -Port1                        |FC-PORT   |    |            |
|  19|*|    SCSI-ID0 LUN0(iStorage 1000)|HDD       |    |running(15%)|
      :
```

- When the test is executed with **"Round times"** specified, the status row shows the current progress of the test round out of the total test rounds in percentage.
  This degree of progress is different from the **"Progress"** displayed by the **<statv>** command.

Ending Test Forcibly

Use **<term>** command to forcibly end the test being executed.
The following is an example of screen using the command.

```
TeDoLi> term
Are you sure you want to terminate the test?
Enter Y or N [N]: y
Terminating the test. Please wait for a while.

TeDoLi>

Completed all the tests.
```

- Only when TeDoLi is **"Executing," <term>** command is available.
  The status of TeDoLi can be checked with **<stat>** command.
- Tests can be forcibly ended by **<term>** command with or without the test ending condition specified.
- A certain duration of time may be required to end all the test after entering **<term>** command.
  After ending all the test, a message **"Completed all the tests."** is displayed.

Checking Executed Test Result

Use **<fail>** command to check the detailed information of tests becoming error.
The following is an example of screen using the command.

```
TeDoLi> fail
----------------------
BM/MB/PCI8/Port1(eth0)
----------------------
Device number    : 16
Terminated the test due to an unexpected error.
Set loopback mode error.
Ether operation error occurred.
API status   : 00 (H)
Driver status : 5f (H)
Set loopback mode is not completed.
Controller registers :
 000c0241 00080380 04008002 00001000
 00000000 000000fe 00000000 310000f8
 00001000 00000000 00000000 00000008
 00000004 00000000 00000000 00000000
```

- When an error occurs on a test, all the detail information of tests becoming error is displayed.
  No information is displayed if error does not occur.
- Use **<stat>** command to check the number of test becoming error.

Use **<warn>** command to check the detail information when warning occurs on the test. The following is an example of screen using the command.

```
TeDoLi> warn
-----------------------------------------
BM/MB/PCI9/Port1/SCSI-ID0 LUN0(iStorage 1000)
-----------------------------------------
Device number    : 19
Warning messages exist, although successfully completed the test.
Command complete with retry. (retry count : 1)
SCSI command error occurred.
I/O status: 0 (H)
API status: 00 (H)
Target status: 00 (H)
Host status: 02 (H)
Driver status: 00 (H)
Residual count: 59392
Duration: 260
Info: 1 (H)
Command: READ 16
CDB: 88 00 00 00 00 00 00 25 8d 06 00 00 00 74 00 00
```

- When a warning occurs on a test, the screen shows all the detailed information of tests that became warning. No information appears if there is no warning.
- Use **<stat>** command to check the number of test becoming warning.

Collecting Log

Saving Log on External Device

Use **<log>** command to save the TeDoLi log on an external device (removable device).
After entering **<log>** command, select the removable disk to be the target in **"Save."**

The following is an example of screen using the command.

```
TeDoLi> log
Select the Log Operation.
1: Save (       )
2: Display
3: Cancel
Enter selection [Cancel]: 1
Now saving...
All logs have been saved.
```

- **"Save"** shows only available removable device as the saving target of TeDoLi log.
- Save the log as the file name **"td_yymmddhhmmss.tar.gz"** on the removable device. **"yymmddhhmmss"** is a time stamp when the command is executed.

Displaying on Screen

Use **<log>** command to display the TeDoLi log on the screen.
After entering **<log>** command, select **"Display."** Since a lot of information is displayed, it is recommended to use such as log function of the remote console.

The following is an example of screen using the command.

```
TeDoLi> log
Select the Log Operation.
1: Save
2: Display
3: Cancel
Enter selection [Cancel]: 2

Press any key to continue ...

################################################################
####
Device List
################################################################
####
[PROGRAM]
TeDoLi Version    : M04.01.18
TeDoLi build date : Jan 14 2009 17:22:46
  :
  :
```

- After selecting **"Display,"** the message **"Press any key to continue …"** is displayed. The screen halts until any key is pressed.
  Activate the log function of the remote console, and then press any key to proceed.
- Refer to the manual of the remote console to use for how to activate the log function.

Ending TeDoLi

Use **<shutdown>** or **<reboot>** command to end the TeDoLi.

The following is an example of screen using the command.

```
TeDoLi> shutdown
Are you sure you want to shut down the system?
Enter Y or N [N]: y
   :
   :
```

- Only when the status of the TeDoLi is **"Idle," <shutdown>** and **<reboot>** command are available.
  The status of TeDoLi can be checked with **<stat>** command.
- The system is rebooted with **<reboot>** command.

Test Executing Part

Memory Test

(1) Outline

Memory access test

This test reads the test target memory and writes the exclusive logical sum of the read value and the random value on the memory. Whole memory area is the test target excepting 1GB for the system diagnosis to operate.

(Reference information)

Test execution time is two minutes per count for 256GB memory.

(2) Message

1. Standard message

Message	Content
Start test. (free memory size : xxx system processor : yyy)	Test is started. **"xxx"** is the free size of memory on the system. **"yyy"** is the number of active processors.
Successfully completed the tests.	Test ended normally.

2. Error message

Message	Content
Failed test.	Error is found in the test.

CPU Test

(1) Outline

Cache Test

This test writes and reads memory for the test area, and the results are compared.

Floating point arithmetic test

This test executes floating point arithmetic instruction.

(2) Message

1. Standard message

Message	Content
Start CPU test. (thread : xxx cache size : yyy)	Test is started. **"xxx"** is the number of threads. **"yyy"** is the cache size.
Successfully completed the CPU test.	Test ended normally.
Halted the CPU test due to requests.	CPU test is stopped by halt requests.

2. Error message

Message	Content
Terminated CPU Cache test due to errors. Failing Address Good Bad CPU Number ---------- ------ ----- ---------- xxx yyy zzz aaa	Error is detected on the cache test. Error address, expected value, result value and CPU number are displayed.
Terminated Floating Point Arithmetic Test due to error. compare failed. CPU Number : xxxxx Good : yyyyy Bad : zzzzz	Error is detected on the floating point arithmetic test. CPU number, expected value file and result value file are displayed.

DVD Test

(1) Outline

Random read test

This test reads randomly-selected blocks from a media and check if the data is properly transmitted.

When the blocks are read 200 times, the test round counts up one

(This does not mean all the blocks on the disk can be read in one round).

(2) Message

1. Standard message

Message	Content
Device information is as follows. Vendor name : xx Product name : xx Firmware rev. : xx Channel : xx SCSI ID : xx LUN : xx	Vender name of device, product name, FW revision and others are displayed.
Medium information is as follows. Medium type : xx Disc status : xx First track : xx Last track : xx Number of sessions: xx Total block : xx Block size : xx TOC information is as follows. Track Type Start LBA Start time(MSF) xx xx xxxxxxxx xx:xx:xx xx xx xxxxxxxx xx:xx:xx Transfer mode : xxx	Media information is displayed.
Random read test start.	Random read test is started.
Total block : xx Block size : xx Test start block : xx Test end block : xx Transfer block : xx Read buffer : xx	Test information is displayed.
Test is finished normally.	Test ended normally.

2. Error message

Message	Content
Terminated the test due to an unexpected error. SCSI command error occurred. I/O status : xx (H) API status : xx (H) Target status : xx (H) Host status : xx (H) Driver status : xx (H) Residual count: xx Duration : xx Info : xx (H) Sense data : key:xx, ASC:xx, ASCQ:xx (H) xx: xx xx xx ... Command : xx CDB : xx xx xx ...	The command ended abnormally. I/O status : Refer to Appendix B (1) errno. API status : Refer to Appendix B (2) API status. Target status: Refer to Appendix B (3) SCSI target status. Host status : Refer to Appendix B (4) SCSI host status. Driver status: Refer to Appendix B (5) .SCSI driver status. Sense data : Refer to Appendix B (6) sense code.

MT Test

(1) Outline

MT reading test

This test starts reading from the top block on a magnetic media and checks if the data is properly transmitted.
When the blocks are read once, the test round counts up one.
Test ends after the test is executed for ten rounds.

(Note)
Before the test for assembled type MT device is executed, move the media from the magazine to the drive since it is not allowed moving the drive from the magazine. If the media is not moved, the error as below will occur.
Check condition Key:2, ASC:3a, ASCQ:00 Medium not present

Using a medium with no data written ends the test abnormally (fail).
Check condition key:8, ASC:14, ASCQ:03 End-of-data not found
When using a new medium for the test, create the test medium with command such as dd command.
(Example: dd if=xxxxxx of=xxxxxx bs=512)

(2) Message

1. Standard message

Message	Content
Device information is as follows. Vendor name : xx Product name : xx Firmware rev. : xx Channel : xx SCSI ID : xx LUN : xx	Vender name of device, product name, FW revision and others are displayed.
MT read test start.	MT reading test is started.
Block size : xx Transfer block : xx Read buffer : xx	Test information is displayed.
Test is finished normally.	Test ended normally.

2. Error message

Message	Content
SCSI command error occurred. I/O status : xx (H) API status : xx (H) Target status : xx (H) Host status : xx (H) Driver status : xx (H) Residual count : xx Duration : xx Info : xx (H) Sense data : key:xx, ASC:xx, ASCQ:xx (H) xx : xx xx xx ... Command : xx CDB : xx xx xx ...	The command ended abnormally. I/O status : Refer to Appendix B (1) errno. API status : Refer to Appendix B (2) API status. Target status : Refer to Appendix B (3) SCSI target status. Host status : Refer to Appendix B (4) SCSI host status. Driver status : Refer to Appendix B (5) SCSI driver status. Sense data : Refer to Appendix B (6) sense code.
Test is terminated due to error.	Test ended abnormally.

HDD Test

(1) Outline

Random read test

This test reads randomly-selected blocks from a media and check if the data is properly transmitted.

When the blocks are read 200 times, the test round counts up one

(This does not mean all the blocks on the disk can be read in one round).

(2) Message

1. Standard message

Message	Content
Device information is as follows. Vendor name : xx Product name : xx Firmware rev. : xx Channel : xx SCSI ID : xx LUN : xx	Vender name of device, product name, FW revision and others are displayed.
Random read test start.	Randomly reading test is started.
Total block : xx Block size : xx Test start block : xx Test end block : xx Transfer block : xx	Test information is displayed.
Test is finished normally.	Test ended normally.

2. Error message

Message	Content
Close error. (errno=xx)	Closing the device failed. errno : Refer to Appendix B (1) errno.
Data unmatch error. Expected data is as follows. xx: xx xx xx ... Actual data is as follows. xx: xx xx xx ...	Data mismatching occurred.
Failed in getting SCSI ID. (status=xx, errno=xx)	Collecting SCSI ID information of device failed. status: Refer to Appendix B (1) errno. errno : Refer to Appendix B (1) errno.
Open error. (errno=xx)	Opening device failed. errno : Refer to Appendix B (1) errno.
Terminated the test due to an unexpected error. SCSI command error occurred. I/O status : xx (H) API status : xx (H) Target status : xx (H) Host status : xx (H) Driver status : xx (H) Residual count : xx Duration : xx Info : xx (H) Sense data : key: xx, ASC:xx, ASCQ:xx (H) xx : xx xx xx ... Command : xx CDB : xx xx xx ...	Command ended abnormally. I/O status : Refer to Appendix B (1) errno. API status : Refer to Appendix B (2) API status. Target status : Refer to Appendix B (3) SCSI target status. Host status : Refer to Appendix B (4) SCSI host status. Driver status : Refer to Appendix B (5) SCSI driver status. Sense data : Refer to Appendix B (6) sense code.
Test is terminated due to error.	Test ended abnormally.

Ether Test

(1) Outline

Internal loop back test

This test uses the internal loopback function in the Ether host adapter to loopback packets in the host adapter and checks the transmission/reception on the host adapter is properly done.

When transmission and reception are repeated 1000 times, the test round counts up one.

(Caution)

Ensure to disconnect the LAN cable from the LAN card before starting the test.

Test packet may leak to the network.

(2) Message

1. Standard message

Message	Content
Internal Loopback Test. Interface Name = xx Hardware Address = xx Length of data = xx Count of packets per cycle = xx Transfer Rate = xx Test data = xx	Test information is displayed.
Test start.	Test is started.
Test terminate.	Test ended.

2. Error message

Message	Content
Data unmatch error. (offset of send external data : xx) Expected data is as follows. xx: xx xx xx … Actual data is as follows. xx: xx xx xx …	Data mismatching occurred.
Ether operation error occurred. API status : xx Driver status : xx	This indicates an error occurred on operation for the host adapter. API status : Refer to Appendix B (2) API status. Driver status : Refer to Appendix B (1) errno.
Controller registers : xx xx xx …	Value of controller register is displayed.

Command Reference

list

Function:
This command displays the device list.

(Screen image)

```
TeDoLi> list<ENTER>
+----+-+--------------------------------+------------+----+-------------+
| Num|*| Device List                    | Type       |Prev| Status      |
+----+-+--------------------------------+------------+----+-------------+
|   1| | MEMORY                         |MEMORY      |    |             |
|   2| | DVD DVD/CDRW RW9120            |DVD         |    |             |
|   3| | DVD Virtual CDROM              |DVD         |    |             |
|   4|!|-MGM2                           |MODULE      |    |             |
|   5|!| -MGM2/MGB/GbE                  |NIC         |    |             |
|   6| |   Port1(eth1)                  |ETH-PORT    |    |             |
|   7| |   Port2(eth2)                  |ETH-PORT    |    |             |
|   8|!|-PMM5                           |MODULE      |    |             |
|   9| |  PMM5/PMB/PROC                 |CPU         |    |             |
|  10|!|-PMM6                           |MODULE      |    |             |
|  11| |  PMM6/PMB/PROC                 |CPU         |    |             |
|  12|!|-BM                             |MODULE      |    |             |
|  13|!| -BM/MB/PCI14                   |SCSI(NoDev) |    |             |
|  14|!|   Port1                        |SCSI-PORT   |    |             |
|  15|!| -BM/MB/PCI8                    |NIC         |    |             |
|  16| |   Port1(eth0)                  |ETH-PORT    |    |             |
|  17|!| -BM/MB/PCI9                    |FC          |    |             |
|  18|!|  -Port1                        |FC-PORT     |    |             |
|  19| |    SCSI-ID0 LUN0(iStorage 1000)|HDD         |    |             |
|  20|!|   Port2                        |FC-PORT     |    |             |
|  21| | ROOT/Port1 Virtual Floppy      |HDD         |    |             |
+----+-+--------------------------------+------------+----+-------------+
The test will terminate in x minutes.
To terminate the test, enter term command.
```

Description number: (a), (b), (c)

Description number	Description
(a)	Device status is displayed. Num : Device number On the top of the device list name,**"+"** or **"-"** symbol is marked. This indicates there are devices under the marked device. * (blank) : Indicates this is not the test target device. * : Indicates this is the test target device. ! : Indicates this device cannot be tested. Device List : Displays device list name. Type : Displays device type. Prev (blank) : Indicates test is not executed after start up. OK : Indicates the previous test ended normally. NG : Indicates the previous test ended abnormally. Status : (blank) : Indicates test is not executed after start up. running(xx%) : Indicates test is being executed. When the test ending option is specifying the number of round, the degree of test progress is also displayed. normal end : Indicates test ended normally. fail : Indicates test ended abnormally. Warning : Indicates test ended normally, but warning is displayed.
(b)	This shows the remaining time of the test when the test end time is specified in the test end option and the test is currently executed.
(c)	This message is displayed when the test end option is set to continue the test and the test is currently executed.

open

Function:
This command expands device information under the entries of device list specified by argument. It does not show the device list.

Argument:

cmd	arg	Description
open	*x*	Expands devices under the specified device number. Command is ignored when there is no device under the device. *x* : Test device number
	all	Expands all the devices under the device.

(Screen image)

Description number

```
TeDoLi> list<ENTER>
+----+-+--------------------------------+----------+----+----------+
| Num|*| Device List                     | Type     |Prev| Status   |
+----+-+--------------------------------+----------+----+----------+
    :
|  10|!|+PMM6                           |MODULE    |    |          |
|  12|!|+BM                             |MODULE    |    |          |
|  21| | ROOT/Port1 Virtual Floppy      |HDD       |    |          |
    :
TeDoLi> open 12<ENTER>
TeDoLi> list<ENTER>
+----+-+--------------------------------+----------+----+----------+
| Num|*| Device List                     | Type     |Prev| Status   |
+----+-+--------------------------------+----------+----+----------+
    :
|  10|!|+PMM6                           |MODULE    |    |          |
|  12|!|-BM                             |MODULE    |    |          |
|  13|!| -BM/MB/PCI14                   |SCSI(NoDev)|    |          |
|  14|!|   Port1                        |SCSI-PORT |    |          |
|  15|!| -BM/MB/PCI8                    |NIC       |    |          |
|  16| |   Port1(eth0)                  |ETH-PORT  |    |          |
|  17|!| -BM/MB/PCI9                    |FC        |    |          |
|  18|!|  -Port1                        |FC-PORT   |    |          |
|  19|*|    SCSI-ID0 LUN0(iStorage 1000)|HDD       |    |          |
|  20|!|   Port2                        |FC-PORT   |    |          |
|  21| | ROOT/Port1 Virtual Floppy      |HDD       |    |          |
    :
```

close

Function:
This command collapses device information under the entries of device list specified by argument.

Argument:

cmd	arg	Description
close	*x*	Collapses devices under the specified device number. Command is ignored when there is no device under the device number. *x* : Test device number
	all	Collapses all the devices under the device number.

(Screen image)

Description number

```
+----+-+--------------------------------+-----------+----+-------------+
| Num|*| Device List                     | Type      |Prev| Status      |
+----+-+--------------------------------+-----------+----+-------------+
    :
|  10|!|-PMM6                           |MODULE     |    |             |
|  11| |  PMM6/PMB/PROC                 |CPU        |    |             |
|  12|!|-BM                             |MODULE     |    |             |
|  13|!| -BM/MB/PCI14                   |SCSI(NoDev)|    |             |
|  14|!|   Port1                        |SCSI-PORT  |    |             |
|  15|!| -BM/MB/PCI8                    |NIC        |    |             |
|  16| |   Port1(eth0)                  |ETH-PORT   |    |             |
|  17|!| -BM/MB/PCI9                    |FC         |    |             |
|  18|!|  -Port1                        |FC-PORT    |    |             |
|  19|*|    SCSI-ID0 LUN0(iStorage 1000)|HDD        |    |             |
|  20|!|   Port2                        |FC-PORT    |    |             |
|  21| | ROOT/Port1 Virtual Floppy      |HDD        |    |             |
    :
TeDoLi> close 12<ENTER>
TeDoLi> list<ENTER>
+----+-+--------------------------------+-----------+----+-------------+
| Num|*| Device List                     | Type      |Prev| Status      |
+----+-+--------------------------------+-----------+----+-------------+
    :
|  10|!|+PMM6                           |MODULE     |    |             |
|  11| |  PMM6/PMB/PROC                 |CPU        |    |             |
|  12|!|+BM                             |MODULE     |    |             |
|  21| | ROOT/Port1 Virtual Floppy      |HDD        |    |             |
    :
```

info

Function:
This command displays detailed information of device specified by argument.

Argument:

cmd	arg	Description
info	*x*	Displays detailed information of the specified device number. When there are devices under the specified device, the detailed information under the devices is displayed. *x* : Test device number
	all	Displays all the detailed information existing under the specified device.

(Screen image)

	Description number
TeDoLi> info 5<*ENTER*> -------------- CELL0/HDM0/SAS -------------- Class Name : SCSI storage controller Vendor ID : 1000 Vendor Name : LSI Logic / Symbios Logic Device ID : 0058 Device Name : SAS1068E PCI-Express Fusion-MPT SAS Revision : 08 SubVendor ID : 1000 SubVendor Name : LSI Logic / Symbios Logic SubDevice ID : 3140 SubDevice Name : Unknown device 3140	(a) (b)

(Description)

Description number	Description
(a)	Device number is displayed.
(b)	Detailed information for each device is displayed.

log

Function:
This command saves test execution log. The file name of the log is **"td_yymmddhhmmss.log."**

(Screen image)

Description number

```
TeDoLi> log<ENTER>
Select the Log Operation.
1: Save (USB-FDU         )
2: Display
3: Cancel
Enter selection [Cancel]: 1

Now Saving...
All Log have been saved.


TeDoLi> log<ENTER>
Select the Log Operation.
1: Save (USB-FDU         )
2: Display
3: Cancel
Enter selection [Cancel]: 1

Set a device to save log data.


TeDoLi> log<ENTER>
Select the Log Operation.
1: Save (USB-FDU         )
2: Display
3: Cancel
Enter selection [Cancel]: 2
Press any key to continue…

######################################################################
Device List
######################################################################
[PROGRAM]
TeDoLi Version    : M04.01.18
TeDoLi build date : Jan 14 2009 17:22:46
     :
     :
```

(a)

(b)

(c)

(d)

(Description)

Description number	Description
(a)	Shows selections to (1) Save, (2) Display or (3) Cancel the log.
(b)	This message is displayed when the log was successfully saved.
(c)	This message is displayed when a device to save the log is not set.
(d)	The log is displayed on the screen.

stat

Function:
This command displays the current or the previous test status.

(Screen image)

	Description number
TeDoLi> stat<*ENTER*> Status : Idle Time : 000:05:31 Total of tests : 6 Running : 1 Pass : 4 Failure : 1 Warning : 0	(a)

(Description)

Description number	Description
(a)	Displays the test status when the command is entered. Status Executing : Status test is being executed. Waiting for Termination : Status waiting for ending of test Idle : Idle status Time : Test executing time (hhh:mm:ss) Total of tests : Number of all the test Running : Number of tests being executed Pass : Number of tests ended normally Failure : Number of tests ended abnormally Warning : Number of tests ended normally but judged as warning (Such as existence of discrepancy on the disk statistical information))

statv

Function:
This command displays the detailed status of the current test.

Argument:

cmd	arg	Description
Statv	*x*	Displays the detailed status of the specified device number. *x* :Test device number

(Screen image)	Description number
TeDoLi> statv 4<*ENTER*> Test Count : 7 Progress : 56%	(a)

(Description)

Description number	Description
(a)	Detailed status of test at entering command is displayed. Test Count : Number of test round Progress : Degree of progress of the current round.

pass

Function:
This command displays information of test that ended normally.

(Screen image)	Description number
TeDoLi> pass<*ENTER*> -------------------------------- CELL0/IOM0/PAM1/PCI1/Port0(eth0) -------------------------------- Device number : 12 Random read test start. Total block : 34861056 Block size : 512 Test start block : 0 Test end block : 34861055 Transfer block : random length Read buffer : 0x614e20 (h) Last progress: 23 rounds, 92 percent Test is finished normally.	 (a) (b) (c)

(Description)

Description number	Description
(a)	Component name is displayed.
(b)	Device number is displayed.
(c)	Detailed log of executed test is displayed.

fail

Function:
This command displays all the test information having **"Failure"** status.

(Screen image)

	Description number
TeDoLi> fail<*ENTER*> -------------------------------- CELL0/IOM0/PAM1/PCI1/Port0(eth0) -------------------------------- Device number : 12 Terminated the test due to an unexpected error. Set loopback mode error. Ether operation error occurred. API status : 00 (H) Driver status : 5f (H) Set loopback mode is not completed. Controller registers : 000c0241 00080380 04008002 00001000 00000000 000000fe 00000000 310000f8 00001000 00000000 00000000 00000008 00000004 00000000 00000000 00000000	 (a) (b) (c)

(Description)

Description number	Description
(a)	Component name is displayed.
(b)	Device number is displayed.
(c)	Detailed information of Fail is displayed.

warn

Function:
This command displays all the test information having **“Warning”** status.

(Screen image)	Description number
TeDoLi> warn<*ENTER*> ----------	
CELL0/HDM0/HDD2(MBB2073RC)	(a)

Device number : 10	(b)
Test Selection : Random Read Test Block Range : All Block Cycle=5 Time=000:01:04 Test has passed, but.. Command Retry occurred. Please exchange HDD early.	(c)

(Description)

Description number	Description
(a)	Component name is displayed.
(b)	Device number is displayed.
(c)	Detailed information of Warning is displayed.

select

Function:
This command sets devices specified by argument as test target.

Argument:

cmd	arg	Description
select	*x*	Sets specified device number as test target. Devices under the selected device become also the test target. *x*: Test device number Multiple device numbers can be specified (select x1 x2 x3…).
	Type	Sets specified device type as test target. *Type*: Test device type Multiple device types can be specified (select type1 type2…).
	all	Sets all the existing device as test target.

(Screen image)

Description number

```
+---+-+--------------------------------+----------+----+-----------+
| Num|*| Device List                    | Type     |Prev| Status    |
+---+-+--------------------------------+----------+----+-----------+
    :
|   3| | DVD Virtual CDROM            |DVD       |    |           |
|   4|!|-MGM2                          |MODULE    |    |           |
|   5|!| -MGM2/MGB/GbE                |NIC       |    |           |
|   6| |   Port1(eth1)                |ETH-PORT  |    |           |
|   7| |   Port2(eth2)                |ETH-PORT  |    |           |
    :
TeDoLi> select 4<ENTER>
TeDoLi> list<ENTER>
+---+-+--------------------------------+----------+----+-----------+
| Num|*| Device List                    | Type     |Prev| Status    |
+---+-+--------------------------------+----------+----+-----------+
    :
|   3| | DVD Virtual CDROM            |DVD       |    |           |
|   4|!|-MGM2                          |MODULE    |    |           |
|   5|!| -MGM2/MGB/GbE                |NIC       |    |           |
|   6|*|   Port1(eth1)                |ETH-PORT  |    |           |
|   7|*|   Port2(eth2)                |ETH-PORT  |    |           |
    :
```

desel

Function:
This command excludes devices specified by argument as test target.

Argument:

cmd	arg	Description
desel	*x*	Sets specified device number to be excluded from test target. When devices exist under the specified device, they are also excluded from test target. *x* :Test device number Multiple device numbers can be specified (desel x1 x2 x3 …).
	Type	Sets specified device type to be excluded from test target. *Type* :Test device type Multiple device types can be specified (desel type1 type2 …).
	all	Sets all the device to be excluded from test target.

(Screen image)

Description number

```
+---+-+--------------------------------+----------+----+-----------+
| Num|*| Device List                    | Type     |Prev| Status    |
+---+-+--------------------------------+----------+----+-----------+
    :
|   3| | DVD Virtual CDROM             |DVD       |    |           |
|   4|!|-MGM2                           |MODULE    |    |           |
|   5|!| -MGM2/MGB/GbE                  |NIC       |    |           |
|   6|*|   Port1(eth1)                  |ETH-PORT  |    |           |
|   7|*|   Port2(eth2)                  |ETH-PORT  |    |           |
    :
TeDoLi> desel 5<ENTER>
TeDoLi> list<ENTER>
+---+-+--------------------------------+----------+----+-----------+
| Num|*| Device List                    | Type     |Prev| Status    |
+---+-+--------------------------------+----------+----+-----------+
    :
|   3| | DVD Virtual CDROM             |DVD       |    |           |
|   4|!|-MGM2                           |MODULE    |    |           |
|   5|!| -MGM2/MGB/GbE                  |NIC       |    |           |
|   6| |   Port1(eth1)                  |ETH-PORT  |    |           |
|   7| |   Port2(eth2)                  |ETH-PORT  |    |           |
    :
```

option

Function:
This command displays the current test option.

(Screen image)	Description number
TeDoLi> option<*ENTER*> Execution Control: Loop continuosly	(a)

(Description)

Description number	Description
(a)	Displays current option of test ending. Loop continuously : Test continues until forcibly ended. Execution Time Limit : *x* minutes : Test ends when *x* minutes elapsed. Round times : *x* rounds : Test ends when test is executed *x* rounds.

round

Function:
This command sets number of round that is test ending option.

Argument:

cmd	arg	Description
round	*x*	Sets number of round. *x* : Number of round (Test continues when “0” is specified).

(Screen image)	Description number
TeDoLi> round 10<*ENTER*> TeDoLi> option<*ENTER*> Execution Control: Round times: 10 rounds	

time

Function:
This command sets test executing time that is test ending option.

Argument:

Cmd	arg	Description
time	*x*	Sets test executing time. *x* : Executing time (Min) (Test continues when **"0"** is specified).

(Screen image)	Description number
TeDoLi> time 8<*ENTER*> TeDoLi> option<*ENTER*> Execution Control: Execution Time Limit : 8 minutes	

exec

Function:
This command starts the test.

(Screen image)	Description number
TeDoLi> exec<*ENTER*> Executing the test. Execution Control : XXXXXXXXXX	 (a) (b)

(Description)

Description number	Description
(a)	Test starting message is displayed.
(b)	Test ending option is displayed. Loop continuosly : Test continues until forcibly ended. Execution Time Limit : *x* minutes : Test ends when *x* minutes elapsed. Round times: *x* rounds : Test ends when test is executed *x* rounds.

term

Function:
This command ends the test forcibly.

(Screen image)	Description number
TeDoLi> term<*ENTER*> Are you sure you want to terminate the test? Enter Y or N [N]: Y Terminating the test. Please wait for a while.	 (a) (b)

(Description)

Description number	Description
(a)	Selects either of (Y) End test forcibly or (N) No.
(b)	Starting message of test ending process is displayed.

shutdown

Function:
This command shuts down the system.

(Screen image)	Description number
TeDoLi> shutdown<*ENTER*> Are you sure you want to shut down the system? Enter Y or N [N]:	 (a)

(Description)

Description number	Description
(a)	Select either (Y) shut down system or (N) not.

reboot

Function:
This command reboots the system.

(Screen image)	Description number
TeDoLi> reboot<*ENTER*> Are you sure you want to reboot the system? Enter Y or N [N]: Y	(a)

(Description)

Description number	Description
(a)	Select either of (Y) Reboot system or (N) No.

ver

Function:
This command displays the version of the TeDoLi.

(Screen image)	Description number
TeDoLi> ver<*ENTER*> Release Version : L04.01.11 TeDoLi Version : 00.00.01 TeDoLi Build Date : Nov 27 2009 09:02:24 Rootfs Version : 04.00.01	(a)

(Description)

Description number	Description
(a)	Displays the version and date of the TeDoLi.

help

Function:
This command displays the command list.

(Screen image)

	Description number
TeDoLi> help<*ENTER*> TeDoLi commands. list - Display the device list. open - Display component list of selected device. close - Close component list. info - Display the details of the selected device. log - Save log data. stat - Display the test status. statv - Display the test status detail. pass - Display passed test information. fail - Display failed test information. warn - Display warned test information. select - Select devices to test. Following is the format of Select Command. select <all | number | type | num-num>... desel - Deselect devices to test. Following is the format of Desel Command. desel <all | number | type | num-num>... option - Display the option for execution. round - Set Round times. time - Set Execution Time Limit. exec - Execute the test. term - Terminate the test. shutdown - Shutdown the system. reboot - Reboot the system. help - Display command list. ver - Display version.	(a)

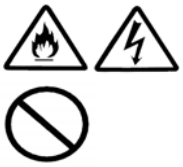
(Description)

Description number	Description
(a)	Displays command help.

Relocating and Storing

Follow the procedure below to relocate or store the server.

CAUTION



Observe the following instructions to use the server safely. There are risks of fire, personal injury, or property damage. Refer to the page iii and later for more description.

- **Make sure to use a lifter (an elevating machine) to lift the server for supporting the bottom stably. If there is no lifter, carrying the server by less than four persons may cause backache.**
- **Do not install the server in any place other than specified.**
- **Do not connect/disconnect any interface cable with the power cord of the server plugged on a power supply.**

IMPORTANT:

- **If the server needs to be relocated/stored due to a change in the floor layout to a great extent, contact the sales agent.**
- **Make sure to make a backup copy of the important data in the hard disk.**
- **When moving the server with hard disk drives, make sure not to give a shock to the hard disk drives.**
- **Again, it is recommended to install the server in a place keeping room temperature for operating internal devices and the server properly. When storing the server, keep it under storing environment conditions (temperature: -5 to 55°C, humidity: 20% to 80%, non-condensing).**

1. Eject CD/DVD media if it is inserted in the server.
2. Power off the server (power LED is off).
3. Disconnect the power cord of the server from the outlet.
4. Disconnect all the cables from the server.
5. Remove the server from the rack.
6. Use an elevating machine to move.

IMPORTANT:
Do not lift the server by grabbing the front bezel in the front of the server. The front bezel can unlatch and the server may fall, resulting to hurt and breakage of the server breaks.

7. Pack the server in proper way to avoid shock or shake.

Check and adjust the system clock before operating the server again after relocating or storing it. If the system clock is largely lagging or fast after adjusting, contact the reseller or the maintenance service company for the maintenance. If the server and the built-in optional devices are moved from a cold place to a warm place in a short time, condensation will occur and cause malfunctions and breakdown when they are used as they are. When you start operating these equipments again after the transportation or the storage, make sure to wait for a sufficient period of time to use them in the operating environment.

-Memo-

Appendix A. Specifications

Product Name			Express5800/A1080a-S						
Model			NE3100-001H/C						
Number of Server			1 (Max. 4 sockets)						
CPU	Type		Intel® Xeon® processor E7520 *1	Intel® Xeon® processor E7540	Intel® Xeon® processor X7542 *1	Intel® Xeon® processor L7545 *1	Intel® Xeon® processor X7550	Intel® Xeon® processor L7555 *1	Intel® Xeon® processor X7560
	Clock		1.86GHz	2GHz	2.66GHz	1.86GHz	2GHz	1.86GHz	2.26GHz
	Number Standard/Max.		0/4						
	3rd Cache		18MB					24MB	
	Number Core/Thread		4C/8T	6C/12T	6C/6T	6C/12T	8C/16T		
Chipset			Intel® 7500						
Memory	Capacity Standard/Max.		- (Essential) / 1TB (64x 16GB) *2						
	Type		DDR3-1066 SDRAM DIMM, Registerd						
	Clock		800MHz	1066MHz	978MHz		1066MHz	978MHz	1066MHz
	Error Detection, Recovery		ECC, SDDC						
	Online Spare Memory		Correspond						
	Memory Mirroring		Correspond (Internal socket, Between sockets mirroring)						
Auxiliary Storage Device	Drive Bay	Standard	-						
		Max.	2.5 HDD: SAS 3.6TB (6x 600GB)						
		Hot-swap	Correspond						
	Interface / RAID level		SAS 6Gb/s : RAID 0/1/5/6/10/50						
	Optical Drive		DVD-ROM or DVD multiple drive (Essential) *3						
	FDD		-						
	Device Bay		-						
Additional Slot			6x PCI EXPRESS 2.0 (x8 lanes, x8 sockets)(full height 167.6mm) *4 1x PCI EXPRESS 2.0 (x16 lanes, x16 sockets)(full height 240mm)						
Graphics	Chip / Video RAM		XGI Volari Z9s / 64MB						
	Color, Resolution		16770K colors: 800x600, 1,024x768, 1,280x1,024						
Standard Interface			1x Analog RGB (Mini D-Sub15, 1x Rear)、 1x Serial port (RS-232C/D-Sub9)、 5x USB2.0 (2x Front、2x Rear、1x Internal) *5						
			2x 1000BASE-T LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 2x Rear) 1x Management LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 1x Rear)						
Redundant Power Supply			Correspond						
Redundant Fan			Correspond (Standard)						
External Dimensions (WxDxH)			448 x 714 x 307 mm (w/o protuberance/inner rail) 482.6 x 848 x 307 mm(including protuberance/inner rail)						
Weight (Max.)			59.4kg [63.5kg]						
Power Supply			2x 2200W((200V)/1100W(100V) 80 PLUS® GOLD (Hot plug supported) AC200V±10%/AC100V±10%, 50/60Hz±3Hz						
Power Consumption(200V, Standby)			1084VA/ 1063W	1114VA/ 1092W	1103VA/ 1081W	1084VA/ 1063W	1103VA/ 1081W	1084VA/ 1063W	1103VA/ 1081W
Power Consumption(200V, High Load)			1998VA/ 1958W	2058VA/ 2017W	2158VA/ 2115W	1998VA/ 1958W	2158VA/ 2115W	1998VA/ 1958W	2158VA/ 2115W
Power Consumption(100V, Standby)			1109VA/ 1087W	1139VA/ 1117W	1128VA/ 1105W	1109VA/ 1087W	1128VA/ 1105W	1109VA/ 1087W	1128VA/ 1105W
Power Consumption(100V, High Load)			2044VA/ 2003W	2105VA/ 2063W	2208VA/ 2164W	2044VA/ 2003W	2208VA/ 2164W	2044VA/ 2003W	2208VA/ 2164W
Environmental Requirement			Operating: 10~35℃ / 10~80%, Storage: -10~55℃ / 20~80% (No condensation)						
Main Appendant Parts			EXPRESSBUILDER(NEC ESMPRO Manager, NEC ESMPRO Agent, User's Guide(Online document), Startup Guide, Rack rail						
Support OS			Windows Server® 2008 R2 Enterprise/Datacenter Windows Server® 2008 Enterprise/Datacenter (x64、SP2)						
			Red Hat® Enterprise Linux® Advanced Platform 5.5 or later(EM64T) SUSE® Linux Enterprise Server 11 for Intel64 *6 SUSE® Linux Enterprise Server 10 SP3 for Intel64 *6 VMware ESX™/VMware ESXi™ *7						

NOTE:

Expansion slot Depth limit of the board which can be installed is 240mm of middle size and 167.6mm of short size.

ANNOTATION:

*1 CTO production. Lead time is different from standard products.
*2 The total capacity of the memory is different depending on each OS.
*3 Writing software is not provided.
*4 When using internal HDD, 1 slot must be assigned for RAID controller per 6 HDDs.
If 7 or more HDDs are used, 2 slots must be assigned for RAID controllers.
*5 Can be used for keyboard and mouse on front or rear ports.
*6 To be supported in future.
*7 Please confirm available version in thre system configuration guide.

Product Name			Express5800/A1080a-D						
Model			NE3100-002H/C						
Number of Server			2 (Max. 4 sockets)						
CPU	Type		Intel® Xeon® processor E7520 *1	Intel® Xeon® processor E7540	Intel® Xeon® processor X7542 *1	Intel® Xeon® processor L7545 *1	Intel® Xeon® processor X7550	Intel® Xeon® processor L7555 *1	Intel® Xeon® processor X7560
	Clock		1.86GHz	2GHz	2.66GHz	1.86GHz	2GHz	1.86GHz	2.26GHz
	Number Standard/Max.		0/4 per server						
	3rd Cache		18MB					24MB	
	Number Core/Thread		4C/8T	6C/12T	6C/6T	6C/12T	8C/16T		
Chipset			Intel® 7500						
Memory	Capacity Standard/Max.		- (Essential) / 1TB (64x 16GB) *2						
	Type		DDR3-1066 SDRAM DIMM, Registerd						
	Clock		800MHz	1066MHz	978MHz		1066MHz	978MHz	1066MHz
	Error Detection, Recovery		ECC, SDDC						
	Online Spare Memory		Correspond						
	Memory Mirroring		Correspond (Internal socket, Between sockets mirroring)						
Auxiliary Storage Device	Drive Bay	Standard	-						
		Max.	2.5 HDD: SAS 3.6TB (6x 600GB)						
		Hot-swap	Correspond						
	Interface / RAID level		SAS 6Gb/s : RAID 0/1/5/6/10/50						
	Optical Drive		(server common)DVD-ROM or DVD multiple drive (Essential) *3						
	FDD		-						
	Device Bay		-						
Additional Slot			6x PCI EXPRESS 2.0 (x8 lanes, x8 sockets)(full height 167.6mm) per server *4 1x PCI EXPRESS 2.0 (x16 lanes, x16 sockets)(full height 240mm) per server						
Graphics	Chip / Video RAM		XGI Volari Z9s / 64MB per server						
	Color, Resolution		16770K colors: 800x600, 1,024x768, 1,280x1,024						
Standard Interface			1x Analog RGB (Mini D-Sub15, 1x Rear) per server, 1x Serial port (RS-232C/D-Sub9) per server, 3x USB2.0 (2x Rear、1x Internal) *5 per server 2x USB2.0 (2x Front) *5 server common						
			2x 1000BASE-T LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 2x Rear) per server 1x Management LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 1x Rear) per server						
Redundant Power Supply			Correspond						
Redundant Fan			Correspond (Standard)						
External Dimensions (WxDxH)			448 x 714 x 307 mm (w/o protuberance/inner rail) 482.6 x 848 x 307 mm(including protuberance/inner rail)						
Weight (Max.)			75.5kg [79.6kg]						
Power Supply			(server common)2x 2200W((200V)/1100W(100V) 80 PLUS® GOLD (Hot plug supported) AC200V±10%/AC100V±10%, 50/60Hz±3Hz						
Power Consumption(200V, Standby)			1940VA/ 1902W	2000VA/ 1960W	1990VA/ 1951W	1940VA/ 1902W	1990VA/ 1951W	1940VA/ 1902W	1990VA/ 1951W
Power Consumption(200V, High Load)			3576VA/ 3504W	3696VA/ 3622W	3896VA/ 3818W	3576VA/ 3504W	3896VA/ 3818W	3576VA/ 3504W	3896VA/ 3818W
Power Consumption(100V, Standby)			1985VA/ 1945W	2046VA/ 2005W	2036VA/ 1995W	1985VA/ 1945W	2036VA/ 1995W	1985VA/ 1945W	2036VA/ 1995W
Power Consumption(100V, High Load)			3658VA/ 3585W	3780VA/ 3704W	3985VA/ 3905W	3658VA/ 3585W	3985VA/ 3905W	3658VA/ 3585W	3985VA/ 3905W
Environmental Requirement			Operating: 10~35℃ / 10~80%, Storage: -10~55℃ / 20~80% (No condensation)						
Main Appendant Parts			EXPRESSBUILDER(NEC ESMPRO Manager, NEC ESMPRO Agent, User's Guide(Online document), Startup Guide, Rack rail						
Support OS			Windows Server® 2008 R2 Enterprise/Datacenter Windows Server® 2008 Enterprise/Datacenter (x64、SP2)						
			Red Hat® Enterprise Linux® Advanced Platform 5.5 or later (EM64T) SUSE® Linux Enterprise Server 11 for Intel64 *6 SUSE® Linux Enterprise Server 10 SP3 for Intel64 *6 VMware ESX™/VMware ESXi™ *7						

NOTE:

Expansion slot Depth limit of the board which can be installed is 240mm of middle size and 167.6mm of short size.

ANNOTATION:

*1 CTO production. Lead time is different from standard products.
*2 The total capacity of the memory is different depending on each OS.
*3 Writing software is not provided.
*4 When using internal HDD, 1 slot must be assigned for RAID controller per 6 HDDs.
If 7 or more HDDs are used, 2 slots must be assigned for RAID controllers.
*5 Can be used for keyboard and mouse on front or rear ports.
*6 To be supported in future.
*7 Please confirm available version in thre system configuration guide.

Product Name			Express5800/A1080a-E					
Model			NE3100-101H/C					
Number of Server			1 (8 sockets)					
CPU	Type		Intel® Xeon® processor E7540	Intel® Xeon® processor X7542 *1	Intel® Xeon® processor L7545 *1	Intel® Xeon® processor X7550	Intel® Xeon® processor L7555 *1	Intel® Xeon® processor X7560
	Clock		2GHz	2.66GHz	1.86GHz	2GHz	1.86GHz	2.26GHz
	Number Standard/Max.		0/8					
	3rd Cache		18MB				24MB	
	Number Core/Thread		6C/12T	6C/6T	6C/12T	8C/16T		
Chipset			Intel® 7500					
Memory	Capacity Standard/Max.		- (Essential) / 1TB *2					
	Type		DDR3-1066 SDRAM DIMM, Registerd					
	Clock		1066MHz	978MHz		1066MHz	978MHz	1066MHz
	Error Detection, Recovery		ECC, SDDC					
	Online Spare Memory		Correspond					
	Memory Mirroring		Correspond (Between sockets mirroring)					
Auxiliary Storage Device	Drive Bay	Standard	-					
		Max.	2.5 HDD: SAS 7.2TB (6x 600GB)					
		Hot-swap	Correspond					
	Interface / RAID level		SAS 6Gb/s : RAID 0/1/5/6/10/50					
	Optical Drive		(server common)DVD-ROM or DVD multiple drive (Essential) *3					
	FDD		-					
	Device Bay		-					
Additional Slot			12x PCI EXPRESS 2.0 (x8 lanes, x8 sockets)(full height、167.6mm) *4 2x PCI EXPRESS 2.0 (x16 lanes, x16 sockets)(full height、240mm)					
Graphics	Chip / Video RAM		XGI Volari Z9s / 64MB					
	Color, Resolution		16770K colors: 800x600, 1,024x768, 1,280x1,024					
Standard Interface			1x Analog RGB (Mini D-Sub15, 1x Rear)、 1x Serial port (RS-232C/D-Sub9)、 5x USB2.0 (2x Front、2x Rear、1x Internal) *5					
			2x 1000BASE-T LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 2x Rear) 1x Management LAN (1000BASE-T/100BASE-TX/10BASE-T, RJ-45, 1x Rear)					
Redundant Power Supply			Correspond					
Redundant Fan			Correspond (Standard)					
External Dimensions (WxDxH)			448 x 714 x 307 mm (w/o protuberance/inner rail) 482.6 x 848 x 307 mm(including protuberance/inner rail)					
Weight (Max.)			75.1kg [79.2kg]					
Power Supply			4x 2200W((200V)/1100W(100V) 80 PLUS® GOLD (Hot plug supported) AC200V±10%/AC100V±10%, 50/60Hz±3Hz					
Power Consumption(200V, Standby)			1972VA/ 1933W	1962VA/ 1923W	1912VA/ 1874W	1962VA/ 1923W	1912VA/ 1874W	1962VA/ 1923W
Power Consumption(200V, High Load)			3669VA/ 3596W	3869VA/ 3792W	3549VA/ 3478W	3869VA/ 3792W	3549VA/ 3478W	3869VA/ 3792W
Power Consumption(100V, Standby)			2017VA/ 1977W	2007VA/ 1967W	1956VA/ 1917W	2007VA/ 1967W	1956VA/ 1917W	2007VA/ 1967W
Power Consumption(100V, High Load)			3753VA/ 3678W	3957VA/ 3878W	3630VA/ 3557W	3957VA/ 3878W	3630VA/ 3557W	3957VA/ 3878W
Environmental Requirement			Operating: 10~35℃ / 10~80%, Storage: -10~55℃ / 20~80% (No condensation)					
Main Appendant Parts			EXPRESSBUILDER(NEC ESMPRO Manager, NEC ESMPRO Agent, User's Guide(Online document), Startup Guide, Rack rail					
Support OS			Windows Server® 2008 R2 Enterprise/Datacenter Windows Server® 2008 Enterprise/Datacenter (x64、SP2)					
			Red Hat® Enterprise Linux® Advanced Platform 5.5 or later(EM64T) SUSE® Linux Enterprise Server 11 for Intel64 *6 SUSE® Linux Enterprise Server 10 SP3 for Intel64 *6 VMware ESX™/VMware ESXi™ *7					

NOTE:

Expansion slot Depth limit of the board which can be installed is 240mm of middle size and 167.6mm of short size.

ANNOTATION:

*1 CTO production. Lead time is different from standard products.
*2 The total capacity of the memory is different depending on each OS. Over 1TB memory is not supported.
*3 Writing software is not provided.
*4 When using internal HDD, 1 slot must be assigned for RAID controller per 6 HDDs.
If 7 or more HDDs are used, 2 slots must be assigned for RAID controllers.
*5 Can be used for keyboard and mouse on front or rear ports.
*6 To be supported in future.
*7 Please confirm available version in thre system configuration guide.

Appendix B. System Diagnostics Message List

(1) Errno

The contents of errnp are described below.

errno	Description
1	Operation not permitted
2	No such file or directory
3	No such process
4	Interrupted system call
5	I/O error
6	No such device or address
7	Arg list too long
8	Exec format error
9	Bad file number
10	No child processes
11	Try again
12	Out of memory
13	Permission denied
14	Bad address
15	Block device required
16	Device or resource busy
17	File exists
18	Cross-device link
19	No such device
20	Not a directory
21	Is a directory
22	Invalid argument
23	File table overflow
24	Too many open files
25	Not a typewriter
26	Text file busy
27	File too large
28	No space left on device
29	Illegal seek
30	Read-only file system
31	Too many links
32	Broken pipe
33	Math argument out of domain of func
34	Math result not representable
35	Resource deadlock would occur
36	File name too long
37	No record locks available
38	Function not implemented
39	Directory not empty
40	Too many symbolic links encountered

42 No message of desired type
43 Identifier removed
44 Channel number out of range
45 Level 2 not synchronized
46 Level 3 halted
47 Level 3 reset
48 Link number out of range
49 Protocol driver not attached
50 No CSI structure available
51 Level 2 halted
52 Invalid exchange
53 Invalid request descriptor
54 Exchange full
55 No anode
56 Invalid request code
57 Invalid slot
59 Bad font file format
60 Device not a stream
61 No data available
62 Timer expired
63 Out of streams resources
64 Machine is not on the network
65 Package not installed
66 Object is remote
67 Link has been severed
68 Advertise error
69 Srmount error
70 Communication error on send
71 Protocol error
72 Multihop attempted
73 RFS specific error
74 Not a data message
75 Value too large for defined data type
76 Name not unique on network
77 File descriptor in bad state
78 Remote address changed
79 Can not access a needed shared library
80 Accessing a corrupted shared library
81 .lib section in a.out corrupted
82 Attempting to link in too many shared libraries
83 Cannot exec a shared library directly
84 Illegal byte sequence
85 Interrupted system call should be restarted
86 Streams pipe error
87 Too many users
88 Socket operation on non-socket
89 Destination address required
90 Message too long
91 Protocol wrong type for socket

92	Protocol not available
93	Protocol not supported
94	Socket type not supported
95	Operation not supported on transport endpoint
96	Protocol family not supported
97	Address family not supported by protocol
98	Address already in use
99	Cannot assign requested address
100	Network is down
101	Network is unreachable
102	Network dropped connection because of reset
103	Software caused connection abort
104	Connection reset by peer
105	No buffer space available
106	Transport endpoint is already connected
107	Transport endpoint is not connected
108	Cannot send after transport endpoint shutdown
109	Too many references: cannot splice
110	Connection timed out
111	Connection refused
112	Host is down
113	No route to host
114	Operation already in progress
115	Operation now in progress
116	Stale NFS file handle
117	Structure needs cleaning
118	Not a XENIX named type file
119	No XENIX semaphores available
120	Is a named type file
121	Remote I/O error
122	Quota exceeded
123	No medium found
124	Wrong medium type

(2) API Status

The contents of API status (ATA Command) are described below.

Code	Description
0	Normal
1	No buffer found at data transfer command/Buffer found at data buffer command
2	ATA command buffer securement request failed
3	ATA command (no data transfer) failed
4	ATA command (with data transfer) failed

Descriptions of API status (ATA IO) are as follows.

Code	Description
0	Normal
1	No data buffer
3	Seek failed
4	Read/Write failed

(3) SCSI Target Status

The contents of SCSI Target status are described below.

Code	Description
00	Good
01	Check condition
02	Condition met
04	Busy
08	Intermediate
0A	Intermediate-condition met
0C	Reservation conflict
11	Command terminated
14	Queue full

(4) SCSI Host Status

The contents of SCSI host status are described below.

Code	Description
00	No error
01	Could not connect before timeout period
02	Bus stayed busy through timeout period
03	Timeout for other reason
04	Bad target
05	Told to abort for some other reason
06	Parity error
07	Internal error
08	Reset by somebody
09	Got an interrupt we were not expecting

(5) SCSI Driver Status

The contents of SCSI Driver status are described below.

Code	Decription
00	No error
04	Internal driver error
05	Finished (host code 04 or 05)
06	Finished with timeout
07	Finished with fatal error
08	Had sense information available
10	Retry the SCSI request
20	Abort the request
30	Remap the block (not yet implemented)
40	Let the kernel panic
80	Get sense information from the device
FF	Nothing to be done

(6) Sense Codes

The contents of sense codes (KEY/ASC/ASCQ) displayed at the check condition occurrence are as follows.

KEY	Description
0	No sense
1	Recovered error
2	Not ready
3	Medium error
4	Hardware error
5	Illegal request
6	Unit attention
7	Data protect
8	Blank check
9	Vendor specific
A	Copy aborted
B	Abort command
C	Equal
D	Volume overflow
E	Miscompare
F	Reserved

ASC	ASCQ	Description
00	00	No Additional sense information
00	01	Filemark detected
00	02	End-of-partition/medium detected
00	03	Setmark detected
00	04	Beginning-of-partition/medium detected
00	05	End of data detected
00	06	I/O process terminated
00	11	Audio play operation in progress
00	12	Audio play operation paused
00	13	Audio play operation successfully completed
00	14	Audio play operation stopped due to error
00	15	No current audio status to return
00	16	Operation in progress
00	17	Cleaning requested
01	00	No index/sector signal
02	00	No seek complete
03	00	Peripheral device write fault
03	01	No write current
03	02	Excessive write errors
04	00	Logical unit not ready, cause not reportable
04	01	Logical unit is in process of becoming ready
04	02	Logical unit not ready, initializing command required

04	03	Logical unit not ready, manual intervention required
04	04	Logical unit not ready, format in progress
04	05	Logical unit not ready, rebuild in progress
04	06	Logical unit not ready, recalculation in progress
04	07	Logical unit not ready, operation in progress
04	08	Logical unit not ready, long write in progress
05	00	Logical unit does not respond to selection
06	00	No reference position found
07	00	Multiple peripheral devices selected
08	00	Logical unit communication failure
08	01	Logical unit communication time-out
08	02	Logical unit communication parity error
08	03	Logical unit communication CRC error (ultra-DMA/32)
09	00	Track following error
09	01	Tracking servo failure
09	02	Focus servo failure
09	03	Spindle servo failure
09	04	Head select fault
0A	00	Error log overflow
0B	00	Warning
0B	01	Warning: specified temperature exceeded
0B	02	Warning: enclosure degraded
0C	00	Write error
0C	01	Write error: recovered with auto reallocation
0C	02	Write error: auto reallocation failed
0C	03	Write error: recommend reassignment
0C	04	Compression check miscompare error
0C	05	Data expansion occurred during compression
0C	06	Block not compressible
0C	07	Write error: recovery needed
0C	08	Write error: recovery failed
0C	09	Write error: loss of streaming
0C	0A	Write error: padding blocks added
10	00	ID CRC or ECC error
11	00	Unrecovered read error
11	01	Read retries exhausted
11	02	Error too long to correct
11	03	Multiple read errors
11	04	Unrecovered read error: auto reallocate failed
11	05	L-EC uncorrectable error
11	06	CIRC unrecovered error
11	07	Data resynchronization error
11	08	Incomplete block read
11	09	No gap found
11	0A	Miscorrected error
11	0B	Unrecovered read error: recommend reassignment
11	0C	Unrecovered read error: recommend rewrite
11	0D	De-compression CRC error
11	0E	Cannot decompress using declared algorithm

11	0F	Error reading UPC/EAN number
11	10	Error reading ISRC number
11	11	Read error: loss of streaming
12	00	Address mark not found for ID field
13	00	Address mark not found for data field
14	00	Recorded entity not found
14	01	Record not found
14	02	Filemark or setmark not found
14	03	End-of-data not found
14	04	Block sequence error
14	05	Record not found: recommend reassignment
14	06	Record not found: data auto-reallocated
15	00	Random positioning error
15	01	Mechanical positioning error
15	02	Positioning error detected by read of medium
16	00	Data synchronization mark error
16	01	Data sync error: data rewritten
16	02	Data sync error: recommend rewrite
16	03	Data sync error: data auto-reallocated
16	04	Data sync error: recommend reassignment
17	00	Recovered data with no error correction applied
17	01	Recovered data with retries
17	02	Recovered data with positive head offset
17	03	Recovered data with negative head offset
17	04	Recovered data with retries AND/OR CIRC applied
17	05	Recovered data using previous sector ID
17	06	Recovered data without ECC: data auto-reallocated
17	07	Recovered data without ECC: recommend reassignment
17	08	Recovered data without ECC: recommend rewrite
17	09	Recovered data without ECC: data rewritten
18	00	Recovered data with error correction applied
18	01	Recovered data with error correction & retries applied
18	02	Recovered data: data auto reallocated
18	03	Recovered data with CIRC
18	04	Recovered data with L-EC
18	05	Recovered data: recommend reassignment
18	06	Recovered data: recommend rewrite
18	07	Recovered data with ECC: data rewritten
19	00	Defect list error
19	01	Defect list not available
19	02	Defect list error in primary list
19	03	Defect list error in grown list
1A	00	Parameter list length error
1B	00	Synchronous data transfer error
1C	00	Defect list not found
1C	01	Primary defect list not found
1C	02	Grown defect list not found
1D	00	Miscompare during verify operation
1E	00	Recovered ID with ECC correction

1F	00	Partial defect list transfer
20	00	Invalid command operation code
21	00	Logical block address out of range
21	01	Invalid element address
22	00	Illegal function
24	00	Invalid field in CDB
25	00	Logical unit not supported
26	00	Invalid field in parameter list
26	01	Parameter not supported
26	02	Parameter value invalid
26	03	Threshold parameters not supported
26	04	Invalid release of active persistent reservation
27	00	Write protected
27	01	Hardware write protected
27	02	Logical unit software write protected
27	03	Associated write protected
27	04	Persistent write protected
27	05	Permanent write protected
28	00	Not ready to ready transition medium may have changed
28	01	Import or export element accessed
29	00	Power on, reset, or bus device reset occurred
29	01	Power on occurred
29	02	SCSI bus reset occurred
29	03	Bus device reset function occurred
29	04	Device internal reset
2A	00	Parameters changed
2A	01	Mode parameters changed
2A	02	Log parameters changed
2A	03	Reservations preempted
2B	00	Copy cannot execute since host cannot disconnect
2C	00	Command sequence error
2C	01	Too many windows specified
2C	02	Invalid combination of windows specified
2C	03	Current program area is not empty
2C	04	Current program area is empty
2D	00	Overwrite error on update in place
2F	00	Commands cleared by another initiator
30	00	Incompatible medium installed
30	01	Cannot read medium: unknown format
30	02	Cannot read medium: incompatible format
30	03	Cleaning cartridge installed
30	04	Cannot write medium: unknown format
30	05	Cannot write medium: incompatible format
30	06	Cannot format medium: incompatible medium
30	07	Cleaning failure
30	08	Cannot write: application code mismatch
30	09	Current session not fixated for append
31	00	Medium format corrupted
31	01	Format command failed

32	00	No defect spare location available
32	01	Defect list update failure
33	00	Tape length error
34	00	Enclosure failure
35	00	Enclosure services failure
35	01	unsupported enclosure function
35	02	enclosure services unavailable
35	03	enclosure services transfer failure
35	04	enclosure services transfer refused
36	00	Ribbon, ink, or toner failure
37	00	Rounded parameter
39	00	Saving parameters not supported
3A	00	Medium not present
3A	01	Medium not present: tray closed
3A	02	Medium not present: tray open
3B	00	Sequential positioning error
3B	01	Tape position error at beginning-of-medium
3B	02	Tape position error at end-of-medium
3B	03	Tape or electronic vertical forms unit not ready
3B	04	Slew failure
3B	05	Paper jam
3B	06	Failed to sense top-of-form
3B	07	Failed to sense bottom-of-form
3B	08	Reposition error
3B	09	Read past end of medium
3B	0A	Read past beginning of medium
3B	0B	Position past end of medium
3B	0C	Position past beginning of medium
3B	0D	Medium destination element full
3B	0E	Medium source element empty
3B	0F	End of medium reached
3B	11	Medium magazine not accessible
3B	12	Medium magazine removed
3B	13	Medium magazine inserted
3B	14	Medium magazine locked
3B	15	Medium magazine unlocked
3D	00	Invalid bits in identify message
3E	00	Logical unit has not self-configured yet
3E	01	Logical unit failure
3E	02	Timeout on logical unit
3F	00	Target operating conditions have changed
3F	01	Microcode has been changed
3F	02	Changed operating definition
3F	03	Inquiry data has changed
40	00	RAM failure
40	nn	Diagnostic failure on component nn
41	00	Data path failure
42	00	Power-on or self-test failure
43	00	Message error

44	00	Internal target failure
45	00	Select or reselect failure
46	00	Unsuccessful soft reset
47	00	SCSI parity error
48	00	Initiator detected error message received
49	00	Invalid message error
4A	00	Command phase error
4B	00	Data phase error
4C	00	Logical unit failed self-configuration
4D	nn	Tagged overlapped commands (nn = queue tag)
4E	00	Overlapped commands attempted
50	00	Write append error
50	01	Write append position error
50	02	Position error related to timing
51	00	Erase failure
52	00	Cartridge fault
53	00	Media load or eject failed
53	01	Unload tape failure
53	02	Medium removal prevented
54	00	SCSI to host system interface failure
55	00	System resource failure
55	01	System buffer full
57	00	Unable to recover table-of-contents
58	00	Generation does not exist
59	00	Updated block read
5A	00	Operator request or state change input (unspecified)
5A	01	Operator medium removal request
5A	02	Operator selected write protect
5A	03	Operator selected write permit
5B	00	Log exception
5B	01	Threshold condition met
5B	02	Log counter at maximum
5B	03	Log list codes exhausted
5C	00	RPL status change
5C	01	Spindles synchronized
5C	02	Spindles not synchronized
5D	00	Failure prediction threshold exceeded
5D	FF	Failure prediction threshold exceeded (false)
5E	00	Low power condition on
5E	01	Idle condition activated by timer
5E	02	Standby condition activated by timer
5E	03	Idle condition activated by command
5E	04	Standby condition activated by command
60	00	Lamp failure
61	00	Video acquisition error
61	01	Unable to acquire video
61	02	Out of focus
62	00	Scan head positioning error
63	00	End of user area encountered on this track

63	01	Packet does not fit in available space
64	00	Illegal mode for this track
64	01	Invalid packet size
65	00	Voltage fault
66	00	Automatic document feeder cover up
66	01	Automatic document feeder lift up
66	02	Document jam in automatic document feeder
66	03	Document miss feed automatic in document feeder
67	00	Configuration failure
67	01	Configuration of incapable logical units failed
67	02	Add logical unit failed
67	03	Modification of logical unit failed
67	04	Exchange of logical unit failed
67	05	Remove of logical unit failed
67	06	Attachment of logical unit failed
67	07	Creation of logical unit failed
68	00	Logical unit not configured
69	00	Data loss on logical unit
69	01	Multiple logical unit failures
69	02	Parity/data mismatch
6A	00	Informational, refer to log
6B	00	Stage change has occurred
6B	01	Redundancy level got better
6B	02	Redundancy level got worse
6C	00	Rebuild failure occurred
6D	00	Recalculate failure occurred
6E	00	Command to logical unit failed
70	nn	Decompression exception short algorithm ID of nn
71	00	Decompression exception long algorithm ID
72	00	Session fixation error
72	01	Session fixation error writing lead-in
72	02	Session fixation error writing lead-out
72	03	Session fixation error: incomplete track in session
72	04	Empty or partially written reserved track
73	00	CD control error
73	01	Power calibration area almost full
73	02	Power calibration area is full
73	03	Power calibration area error
73	04	Program memory area update failure
73	05	Program memory area is full
80-FF	nn	Vendor specific
nn	80-FF	Vendor specific

Appendix C. Settings for each OS

When installing and booting OS, BIOS settings are needed to be changed from the default settings depending on the OS.

- When Windows 2008 SP2

  1)If using A1080a-E model and the Core Enable Count is more than 32, change the setting of "Hyper-threding" to "Disable".

  Note

  Core Enable Count : System Web Console -> Core Disable -> Core Enable Count

  Hyper-threding : BIOS SETUP Menu -> Advanced -> CPU Configuration -> Hyper-threding

- When VMware ESX/E

  1) Change "MMIOH of PCI Subsystem Settings" to "Disable".
  2) Confirm that Execute Disable Bit and Intel VT are set to be "Enable". If not, change it to "Enable".

  Note

  MMIOH : BIOS SETUP Menu -> Advanced -> PCI Subsystem Settings ->MMIOH

  Execute Disable Bit ; BIOS SETUP Menu -> Advanced -> CPU Configuration ->Execute Disable Bit

  Intel VT : BIOS SETUP Menu -> Advanced -> CPU Configuration -> Intel VT

- When VMware ESXi

  1) If NE3108-003, 4ch 1000Base-T, is configured in a PCI slot, change OPROM setting for the PCI slot in which the 1000Base-T card is configured, to "Enable".

  Note

  OPROM Setting : BIOS SETUP Menu -> Advanced -> PCI Subsystem Settings -> Slot Configuration -> PCI-Express (1-14) -> OPROM

NOTE:

If any changes are made, save them in the non-volatile memory and reboot the system.

The new setting will not affect unless they are saved and the system is rebooted .

Appendix D. Firmware License Information

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Applicable components:
Linux, BusyBox, U-Boot, crosstool, rstplib, lcdproc, readline

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